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ORIGINAL LECTURES.

GULSTONIAN LECTURES.
ON MALIGNANT ENDOCARDITIS.

Delivered at the Royal College of Physicians, London, on Thursday, February 26, 1885.

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LECTURE I.

MR. PRESIDENT AND GENTLEMEN: It is of use from time to time to take stock, so to speak, of our knowledge of a particular disease, to see exactly where we stand in regard to it, to inquire to what conclusions the accumulated facts seem to point, and to ascertain in what direction we may look for fruitful investigations in the future. With your permission, Sir, I propose to do this in the case of that most interesting disease generally known as ulcerative endocarditis, a disease the phenomena of which were first clearly explained by the late Dr. Kirkes, from whose investigations, in 1851–52, we date our accurate knowledge of the affection. Some of those who listen to me to-day can doubtless recall, and recall with pleasure, the Gulstonian Lectures of 1851, in which Dr. Ormerod dealt so fully and so ably with valvular affections of the heart; but a reference to them will show how much the past twenty-five years have done to widen our view of cardiac disease, more particularly in regard to the effects of emboli and the association of valvular inflammation with grave constitutional disorder, and the probable connection of the disease with the presence of microörganisms. By the labors of Drs. Ogle, Wilks, Simpson, Moxon, Bristowe, and others, in this country; of Charcot, Vulpian, and Lancereaux, in France; and of Virchow and a host of observers, in Germany; a large amount of material has been accumulated, and we may assume that the etiological, clinical, and anatomical characters of the disease have been fairly well ascertained, and that we have got about as far towards a full knowledge of the affection as the ordinary means at our disposal will permit. The inquiry now enters upon another stage, and it remains for experimental investigation to determine, if possible, the relation of the endocarditis to those diseases with which it is most frequently associated. This being the case, the present time has seemed to me a favorable opportunity to summarize our knowledge to date, and for this purpose I have reviewed the records of over two hundred cases, which, from the description of the symptoms and lesions, were evidently of the type of malignant endocarditis; and these, with the considerable experience I have had at the General Hospital at Montreal, may perhaps enable me to give a somewhat more comprehensive account, in some respects, than has yet been attempted.

In discussing the subject of endocarditis we are met at the outset by difficulties of nomenclature and classification. The designation *acute* may be used to indicate those forms which are accompanied by proliferation of and exudation upon the endocardial surface, with or without loss of substance, as opposed to *chronic*, in which there are sclerotic changes without vegetations. Subdivisions of the acute form have been arranged on an anatomical basis as the terms *plastic*, *papillary*, *verrucose*, *fungous*, *ulcerative*, indicate. On the other hand, from an etiological point of view, the forms of endocarditis are as numerous as the diseases in which it occurs, and we constantly hear the expressions *puerperal*, *rheumatic*, *scarlatinal*, etc. Some speak of primary and secondary forms, while from a clinical standpoint they are arranged in two classes, simple and grave. Anatomically there appear to be no very essential differences in the various forms of acute endocarditis. Between the small papillary excrescence and the huge fungating vegetation with destructive changes all gradations can be traced, and the last may be the direct outcome of the first; the two extremes indeed may be present in the same valve. They represent different degrees of intensity of one and the same process. A classification of cases based on the ordinary macroscopic characters of the inflammatory products into warty or verrucose and ulcerative will in many instances group together cases widely different in their clinical aspects, and contrariwise, a clinical subdivision into cases of simple and cases of malignant endocarditis by no means of necessity implies that the lesions in the former case are all of the plastic or warty variety, and in the latter of the ulcerative or destructive. The term *ulcerative* has come into very general use to describe the grave form, and it expresses well an anatomical feature present in a large proportion of cases; but in others it is very inapplicable, as there may be no actual loss of substance, and no more destruction than occurs in the verrucose form; and, on the other hand, there may be great destruction and ulceration from causes of an entirely different nature. The numerous other terms employed, *septic*, *infectious*, *diphtheritic*, *mycosis endocardii*, *arterial pyæmia*, while each expressing some special feature, and so far suitable, have never come into very general use. On the whole, it seems to me that the names *simple* and *malignant*, which we use so often to separate the milder and severe forms of many diseases, might appropriately be employed in describing the cases of acute endocarditis; the *simple* being those with few or slight symptoms, and which run a favorable course; the *malignant* the cases with severe constitutional disturbance and extensive valve lesions, whether ulcerative or vegetative, the term being more clinical than anatomical.

Malignant endocarditis occurs under the following conditions: 1. As a primary disease of the lining membrane of the heart or its valves, either attacking persons in previous good health or more often attacking the debilitated and dissipated or those with old valve

lesions. 2. As a secondary affection in connection with many diseases, particularly rheumatic fever, pneumonia, scarlet fever, diphtheria, ague, etc. 3. As an associated condition in septic processes, traumatic or puerperal. We shall discuss first the anatomical characters, then the clinical features, and lastly the etiological and pathological relations.

The lesions of malignant endocarditis are by no means uniform, and may be vegetative, ulcerative, or suppurative; and these various forms may occur alone or in combination. The belief that there is always ulceration has led to some confusion, and we must recognize that there are cases with the clinical history of the malignant form in which, post-mortem, the valvular condition has been that of a severe vegetative or verrucose endocarditis. Such a case was a lad aged eleven, a patient of Dr. Molson's, from whom I obtained the specimen which I pass round. He had chorea in July, 1880, the second attack. Rapid movement and recovery under Fowler's solution five minims every four hours hypodermically, took place. There was a slight murmurish condition of the first sound. When seen again on March 3, 1881, the chorea had returned, having begun ten days before. The patient improved until the 10th, when he began to get feverish; had exacerbations each evening; temperature rising to 104° F. He became unconscious. There was slight paresis of the left side, and death took place on the 16th. The temperature on the 15th was nearly 106°. There were irregular, soft, grayish-white vegetations on the mitral valve, infarcts in spleen and kidneys, and a small spot of red softening in the right corpus striatum. These photographs from a case of Dr. Musser's, illustrate a more advanced condition of the same kind; the vegetations were larger and more abundant, and some were a little irregular and soft on the surface, but unless a mass was removed no actual loss of substance was seen. Even in the smallest vegetation there is some destruction of endocardial tissue, if only of the endothelium and superficial layer, while the larger outgrowths are more deeply set in the valve, or may involve the entire thickness. More commonly with or without vegetations there is ulceration, the frequency of the occurrence of which has given the name most often attached to this form of endocarditis. The loss of substance may be superficial, involving only the endocardium, or it may be deep and destructive, leading to perforation of a valve, of the septum, or of the heart itself. On the valves extensive outgrowths usually accompany the process, and may conceal the ulcer or project as fungating masses from its edge, as is well illustrated by this colored drawing. In many instances the process appears simply ulcerative, without any vegetations to speak of. In the slightest form only a superficial abrasion exists, perhaps scarcely recognizable, in others a process of erosion may go on by which half a valve may be destroyed, or there may be (as shown in this drawing) a deep excavation extending beyond the valves and destroying the muscle substance of the heart, leading to perforation of the septum of the wall of the ventricle. These are well-known features, however, upon which I need not dwell. In two instances I have seen superficial necrotic changes without ulceration or vegetations, circumscribed patches, the size of a sixpence, opaque yellow-white in color, resembling the necrotic pleura, over a pyæmic infarct of the lung or portion of dead peritoneum at the base of a deep typhoid ulcer. Doubtless these would in time have formed ulcers. I find this condition noted by one or two observers. Lastly, the process may be suppurative, in which case the deeper tissues of the valve appear first involved and the endocardium only implicated by contiguity. The occurrence of small abscesses at the base of extensive vegetations is not uncommon, but there are also instances in which the suppuration seems the initial step. The combination of ulcerative and fungating outgrowths is perhaps the most common condition. The vegetations vary a good deal in appearance and consistence. Soft grayish-white masses with roughened friable surfaces, to which thin blood-clot adheres, are numerous, or there may be large cauliflower excrescences with deep jagged fissures; or again, long pendulous stalactitic masses. In the latter form we often see, as Dr. Moxon pointed out, the effects of friction, and such a long vegetation from an aortic cusp may produce by contact a whole series of smaller outgrowths along the ventricular wall. The pressure of the valves against each other and the action of the blood tend to loosen and break the vegetations, and one can sometimes see where masses have been torn off either entire or by a gradual process of disintegration. Considering the force with which the valves come together it is curious that the soft vegetations, occupying, as they generally do, the lines of closure, can resist the constant compression to which they are subjected. Some vegetations present a remarkable greenish-gray or greenish-yellow color. Changes in a conservative direction may go on when the disease is much prolonged. Fibroid induration may take place in the deeper parts, while the superficial portions remain unchanged and necrotic, perhaps also getting a little harder and shrinking. Such a process can be seen in this specimen of endocarditis from an ox, in which there were most extensive vegetative and destructive changes. Not unfrequently the vegetations are gritty from the deposit of lime salts, which may take place in very acute cases, and is not necessarily an indication of age. It is interesting to note how often inorganic material is deposited in the neighborhood of microörganisms, as here on the endocardial outgrowths, in the tonsillar crypts, and about the tufts of actinomyces. Two conditions must be distinguished from the lesions of malignant (mycotic) endocarditis; the atheromatous degeneration in sclerotic valves, which leads to ulceration and extensive destruction of segments—a process which has nothing in common, except in its effects upon the valves, with the acute ulcerative changes above described, but is similar to the atheromatous processes in the aorta. It must not be forgotten, however, that an acute mycotic process may be engrafted, and indeed often is, upon old sclerotic valves, the seat of atheromatous changes. The firm white globular thrombi of the auricular appendices and of the interstices of the columnæ carneæ of the ventricles, have sometimes an appearance closely resembling endocardial outgrowths, and when softened in the centre and ruptured the resemblance may be very close indeed. It is possible that the granular débris of an atheromatous abscess or a softened thrombus may possess irritating properties when discharged into the blood.

Histological characters.—The study of a small fresh endocardial vegetation shows it to be made up of cells derived from the subendothelial layer, round and fusiform, which by their proliferation have produced a small nodular projection on the surface of the endocardium. Varying with the rapidity of the growth, the mass will present the characters of a soft granulation tissue or a tolerably firm fibrous outgrowth. Usually the round cells predominate, but there may be many elongated, spindle-formed cells with three or four processes. What part the endothelium plays in this growth has not been determined. Tiny outgrowths may be seen in which the process appears to be entirely subendothelial, but usually before the mass attains any size the smooth surface is lost, and there is deposited upon it a cap of fibrin in the form of a granular, sometimes stratified, material, of variable thickness. Though this resembles an ordinary coagulable exudation, it is probably deposited directly from the blood, and is of the nature of a thrombus. Upon and in this layer may be found, sometimes in large numbers, those remarkable little bodies which have so long been known, when collected together, as Schultze's granule masses, and which have of late become so prominent as the blood-plates of Bizzozero and the hæmatoblasts of Hayem. Occasionally they are very abundant, and I have seen soft warty vegetations composed (superficially) in great part of them. As their connection with endocardial and endarterial outgrowths has not, so far as I know, been referred to, I may be permitted to call attention to these two drawings, which further illustrate this point. The first represents the aorta from an old man dead of carcinoma, in which just above the bifurcation three irregular masses are shown, one nearly an inch in length, which projected fully a quarter of an inch from the intima of the vessel. They were attached to atheromatous ulcers, were soft, grayish-white in color, and were composed exclusively of the elements of Schultze's granule masses, with fibrin fibrils, and here and there a few white corpuscles. The second drawing illustrates a small aneurism of the aorta, which has perforated the œsophagus. On the wall of the sac the artist has represented a number of irregular whitish lines, which were narrow elevated ridges, also made up microscopically of these small discoid elements, the connection of which with fibrin formation has been so strongly insisted upon by Bizzozero. Scattered in and beneath the fibrinous exudation are numerous small granular bodies, which have the appearance and reaction of micrococci.

The larger vegetations, more characteristic of malignant endocarditis, consist of a granular material composed of altered and dead tissue elements, fibrinous exudation, and colonies of micrococci; the deeper parts present the appearance of a granulation tissue, while at the attachment in the valve there is always more or less infiltration and increase of the cell elements. The granular substance is structureless, and resembles diphtheritic exudation, the resemblance at times being so close that one can readily understand the application of the term "diphtheritic" to the inflammation. It may be distinctly laminated, and with a high power fine filaments can be seen, though usually the granules conceal all appearance of structure. Strands of translucent material may occur throughout the mass, as if portions had undergone a sort of hyaline transformation. In some instances this is very marked. Pale spheres filled with granules also occur, and may be very abundant. They have been described as colonies of micrococci, but some regard them as altered endothelial elements. I have seen them too numerous to be explained on this view. At the attachment of the vegetation there is a zone of tissue deeply infiltrated with leucocytes, and deeper still the tissue elements of the valve present an increase of nuclei and cells. The destruction of tissue appears to result in two ways: first, a gradual extension inwards of the necrotic process, doubtless induced by the micrococci; secondly, the softening and separation of valve tissue caused by the rapid development of leucocytes at the base of the vegetation.

The micrococci are constant elements in the vegetations. All granules of a uniform size met with in the sections are not microörganisms, nor, indeed, are all which stain by some methods recommended for the detection of these bodies. By far the most satisfactory method is that of Gramm,[1] in which the section after staining in gentian violet, is transferred for a few minutes to a dilute solution of iodine and iodide of potassium, and then to the alcohol, when it is found that the color has been extracted from all tissue elements and nuclei, leaving only the microörganisms stained. They vary a good deal in number and arrangement, and may be scattered singly in the granular substance or arranged in groups. They are usually very numerous at the deeper part of the vegetations, just where the structureless material joins the granulation tissue, and they may penetrate deeply into the substance of the valve. Sometimes the smaller vegetations seem made up exclusively of them. Several of my specimens appear to confirm the view of Klebs,[2] that the micrococci lodge first on the endocardium and penetrate into the substance, often as distinct columns. In their immediate vicinity there is a zone of necrosis, and beyond this an accumulation of leucocytes and signs of reactive inflammation. The microörganisms found in connection with malignant endocarditis are not all of the same kind. Klebs distinguishes two forms, one met with in septic, and the other in rheumatic cases. In some instances the micrococci are all arranged in zoöglœa-like masses, in others, particularly the septic cases, they are in chaplets. Some present distinct capsules. Small elongated bacilli have also been found; I have seen them in one instance—short, stout rods often joined in pairs. Delafield and Prudden[3] have recently noted the presence of bacilli in the vegetations of a very acute case of malignant endocarditis. Cornil, in a recent lecture,[4] stated that the bacillus tuberculosis had been found in the vegetations on the valves in cases of phthisis, and expressed the opinion that before long we should have accurate knowledge of a variety of microörganisms in endocarditis depending upon the nature of the primary disease. By culture experiments alone can we hope to have the question settled.

The following figures give an approximate estimate of frequency with which different parts of the heart are affected. The aortic and mitral valves were affected

[1] Fortschritte der Medicin, Berlin, Bd. i.

[2] Archiv. f. Experiment. Pathologie, Bd. vi.

[3] Text-book of Pathological Histology, New York, 1885.

[4] L'Abeille Médicale, No. 51, 1884.

together in forty-one cases, the aortic valves alone in fifty-three, the mitral alone in seventy-seven, the tricuspid in nineteen, the pulmonary valves in fifteen, and the heart-wall in thirty-three. The right heart is rarely affected alone, in only nine instances, in which five the tricuspid and four the pulmonary valves were involved. The valves are most often attacked along the lines of closure, as in simple endocarditis, the auricular faces of the mitral flaps and the ventricular surfaces of the aortic cusps suffering most severely. Mural endocarditis is most often seen at the upper part of the septum of the left ventricle, just below the aortic ring, in which situation some of the most extensive and deep cardiac ulcers occur, leading to perforation of the septum. Next in order is the endocardium of the left auricle on the postero-external wall, as noted by Lepine.[1]

The local effects of the ulcerative changes are important. Perforation of a valve segment is extremely common, sometimes there is a clean-cut, punched-out hole with scarcely any irregularity of the edges; more frequently, however, there are great fungous vegetations which completely close and conceal the perforation. Erosion of the chordæ tendineæ is frequently met with, and an entire group passing to the papilla may be destroyed, the ends curled and encrusted with vegetations. Ulceration of the heart muscle leading to perforation of the septum or of the wall of a chamber is a much less frequent occurrence. I have collected notes of eleven instances; three of the septum close to the aortic ring. Ulcers at the aortic ring perforated the left auricle in three instances, the right auricle in one, and the right ventricle in one. In a remarkable case of Dr. Stephen Mackenzie[2] the left ventricle was perforated by an ulcer at the apex. In a case of Dr. Curnow,[3] the ulceration extended between the coats of the aorta, and then perforated into the lumen of the vessel, and in one of the Montreal cases there was perforation of an aneurism of the aorta by ulceration, an instance of extensive ulcerative endarteritis with the production of multiple aneurisms. Another common result of ulceration is the production of valvular aneurism. The anterior flap of the mitral is most frequently affected, and then the aortic cusps. In the records of the cases which I have reviewed, I was surprised not to find this condition noted oftener, only in about 12 per cent. of the cases; but in very many cases the record of the anatomical condition was meagre. I shall not refer further to this interesting point, as Dr. Legg has dealt with it very fully in a recent lecture at this College.[4] I may observe, however, that the atheromatous ulceration is also a frequent cause of aneurism of the valves.

It was Sir James Paget,[5] I think, who first referred to the frequency with which sclerotic and malformed valves are attacked by acute disease. Chronic valvulitis is met with in a large number of cases of malignant endocarditis. The records which I have examined give only a percentage of about twenty-five, but the condition of the valves, except as regards ulceration, was often omitted, and this represents a very much smaller percentage than actually occurs. In more than three-fourths of the Montreal cases sclerotic changes were present, and Dr. Goodhart found[1] in a series of sixty-nine cases that sixty-one presented old thickening of the valves. In very many of the cases the condition of fusion of two of the aortic cusps was present. This abnormality is almost invariably accompanied by sclerotic changes, and to the existence of these is probably due the frequency with which they are attacked by ulceration. In seventeen instances of fusion of two of the aortic cusps, of which I have notes, there were ulcerative changes in eight, in two or three of an atheromatous nature.

In a few instances the aorta is involved with the heart. The most frequent site is the sinuses of Valsalva, the vegetations growing through the segments spread on to the aortic wall, or it is affected by friction. It is rare for the vegetations to extend into the arch. I have met with one remarkable instance of ulcerative endocarditis in which there was also ulcerative endarteritis, involving the arch and producing multiple aneurisms. The specimen which I here demonstrate was taken from a man about thirty, who had been the subject of syphilis and was known to have had aortic incompetency for some time. He was admitted to the General Hospital, Montreal, on June 4, 1880, with diarrhœa, chills, headache, cough, and fever. Temperature 104°. There were signs of pneumonia at the left base. He became delirious, a low typhoid condition supervened with chills at intervals, and death took place on July 1st. The aortic valves were curled and hard, and presented extensive recent vegetations, the arch of the aorta presented four aneurisms, three small, not larger than cherries, and one the size of a billiard ball. The small ones were not noticeable as aneurisms from the internal surface, but presented the appearance of fresh fungous vegetations, on separating which little slits could be seen leading to saccular dilatations of the middle and outer coats. The large aneurism was thin-walled with no laminated fibrin, and presented at the edges of the orifice and over the whole lining membrane of the sac, many grayish-green vegetations, some of which had perforated the sac and caused a rupture into the pericardium. It may be presumed that in this instance the ulcerations led directly to the production of the aneurisms, certainly in the case of the smaller ones, and the larger sac presented a condition of mycotic endarteritis unique in my experience of aortic aneurisms.

Of associated pathological changes we have, in the first place, those connected with some primary disease, to which the endocarditis is in the majority of cases secondary. Thus, in the endocarditis of septic processes there is the local lesion, a suppurating wound, a phlegmonous inflammation, or puerperal processes of a septic nature. In a very considerable proportion of cases there is evidence of recent pneumonia, in others rheumatic affections of joints, and in a few diphtheritic processes. In the group of primary cases the lesions are entirely those of endocarditis, local and general. In the second place, there are the extensive pathological changes due to embolism, and these constitute interesting features in the disease, and may produce a

[1] Bull. Soc. Biologie, 1869.
[2] Pathological Society's Transactions, vol. xxxiii.
[3] The Lancet, 1883, vol. i.
[4] Bradshawe Lecture, 1882.
[5] Medico-Chirurgical Transactions, vol. xxvii.

[1] Pathological Society's Transactions, xxxiii.

very great variety of lesions in every portion of the body. I do not propose to deal very fully with these, but to call attention only to some special points. The cases may be divided into those without any embolic processes, cases in which the infarcts are simple, not suppurative, those in which there are innumerable suppurative infarcts, and cases in which some of the infarcts are simple and some suppurative. It is remarkable how variable these embolic features are. They may be entirely absent in well-marked malignant cases. They are not necessarily associated with suppuration; indeed, in a very considerable number of cases they present the characters of ordinary hemorrhagic infarcts, but in the traumatic and puerperal cases the infarcts are invariably septic. They may be few in number, only one or two perhaps in the spleen or kidney, or they may be in thousands throughout the various organs of the body. When suppurative, micrococci, in my experience, are always present; but the micrococci may exist in the vessels without inducing this change. In severe forms of the disease hemorrhages are very frequent upon the skin, serous and mucous surfaces. The cutaneous ones will be referred to again in connection with the symptomatology. They appear, in many instances, to be due to the effect of the poison, just as in other infectious diseases; in others they are undoubtedly embolic, and a minute necrotic or suppurative centre can sometimes be seen. In the membranes of the brain I have twice met with extensive superficial extravasation. Litten[1] has called attention to the frequency of retinal hemorrhages, particularly in the endocarditis of puerperal sepsis. In some instances there are innumerable miliary abscesses, more particularly in the heart and kidneys. They are often associated with hemorrhage, and the smaller ones look like little extravasations, but the presence of micrococci and suppuration can be easily determined in stained sections. The spleen is most often the seat of infarction, and next in order the kidneys. The lungs are usually affected when the endocarditis is on the right side, and there may be suppuration or even extensive gangrene, but even with destructive lesions of the pulmonary valves there may be no suppurative infarcts in the lungs, as in a case of Dr. Church.[2] Or again, as in a case of Dr. Moxon's,[3] there may be with aortic valvulitis suppurative infarcts in the lungs, and simple ones in the other organs. The gastro-intestinal canal may present very remarkable changes, due to the presence of numerous infarctions, from the size of a pin's head to a split pea. They are slightly elevated, grayish-yellow in color, often surrounded by a zone of deep congestion or extravasation, and on section may show a suppurative centre. Micrococci are present as in other biliary abscesses, and in several instances I was able to find small embolic plugs in the arteries of the submucosa. The abscesses may discharge and leave a small ulcerated surface. In the stomach there may be similar minute infarcts, and occasionally larger ones. Carrington[4] has described a remarkable case in which there was a gastric ulcer, apparently due to embolic process, in a case of severe endocarditis; and Magill,[1] a case in which the stomach was intensely inflamed, the mucous membrane at the greater curvature being black, almost gangrenous. The liver may present minute abscesses, and in a number of cases in which there has been jaundice degeneration of the cells has been observed.[2] The serous surfaces are often inflamed, pleurisy and pericarditis being not uncommon complications. The pericardium is most frequently affected in rheumatic cases, in which endocarditis and pericarditis may occur simultaneously. Pleurisy is met with chiefly in connection with the traumatic and puerperal cases, and also with pneumonia, which, as I shall show, plays such an important part in the history of this form of endocarditis. The cerebral lesions are of the substance and of the membranes. Embolic softening, simple or suppurative, is extremely common, and in very many cases head symptoms supervene, and there is paralysis of one side or the other. There may be a single embolus, producing extensive suppuration or red softening, or there may be multiple infarcts in various regions.

The meningeal complications of endocarditis have not received much attention. Considering the frequency with which it has occurred in the Montreal cases, five instances out of twenty-three, I was quite prepared to find such a large number as twenty-five cases—*i. e.*, in somewhat over twelve per cent. In the majority of these cases it occurred in connection with pneumonia. It is almost always cortical, but may extend to the base and involve the nerves, leading in one case, which I saw with Dr. Ross at the Montreal Hospital, to strabismus, and also to ulceration of the cornea from involvement of the fifth nerve. In rare instances the spinal meninges are involved, and the clinical picture may be that of an acute cerebro-spinal meningitis.[3] Acute suppurative parotitis was noted in three cases.

[1] Charité Annalen, iii., Berlin.
[2] Path. Soc. Trans., vol. xxvi.
[3] Ibid., vol. xix.
[4] The Lancet, vol. i., 1884.

[1] Brit. Med. Journal, vol. ii., 1884.
[2] Schnitzler, Wiener Med. Presse, 1865.
[3] Hunolle, Bull. de Soc. d'Anatomie, 1874; and Heineman, Med. Record, New York, vol. ii., 1881.

ORIGINAL ARTICLES.

A YEAR'S WORK IN LAPAROTOMY.

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FROM the subjoined table it will be seen that I have had during the past year twenty-two ovariotomies, making a total of one hundred and thirty-two cases. Of the former, ten were performed in the Hospital of the University of Pennsylvania, with three deaths; seven at my private hospital, with one death; and five at the home of the patient, with one death.

In eleven both ovaries were removed. Seventeen had adhesions, which in seven were of the most formidable character, requiring many ligatures and very careful and prolonged dissection. There were also four women whose ages were respectively sixty, sixty-one, sixty-three, and sixty-four years; of these one died.

Total Number.	Name and Residence of Previous Medical Attendant.	Age.	Condition.	No. of Children.	Previous Tappings.	Place of Operation.	Date of Operation.	Adhesions.	Ovary Diseased.	Size and Nature of Tumor.	Length of Incision.	Drainage.	Result.	Remarks.
111	Dr. W. R. Cruice, Philadelphia.	37	S			Univers Hosp'l.	Jan. 31.	None.	L	4 lbs.	Long	None.	Recovery.	A solid fibroid tumor.
112	Dr. H. L. Orth, Harrisburg, Pa.	28	M	4		Home.	Feb. 2.	Parietal, pelvic, vesical.	L R	1 lb.	Short.	"	"	
113	Dr. J. Y. Dale, Lemont, Pa.	64	M	2	1	"	Feb. 4.	Parietal.	L R	40 lbs.	"	Tube.	"	Proliferous cyst of suspected malignancy.
114	Dr. W. Ellershaw, Philadelphia.	35	S			Univers. Hosp'l	Feb. 28.	Omental	L R	50 "	"	None.	"	
115	Dr. E. Martin, Philadelphia.	42	S		1	"	" "	None.	R L	15 "	"	"	"	
116	Dr. E. Martin, Philadelphia.	61	M	3	3	"	Mch. 18.	Parietal, omental, intestinal.	L	50 "	"	"	"	Many ligatures needed.
117	Dr. W. J. Humphreys, Cherryville, Pa.	21	S		2	"	April 6.	Parietal, omental.	L	45 "	"	"	"	Many ligatures needed.
118	Dr. M. B. Strickler, New Bloomfield, Pa.	40	M	7		"	April 12.	Omental.	R L	30 "	"	"	Death from peritonitis.	
119	Dr. L. D. Judd, Philadelphia.	37	S			Private Hosp'l.	May 10.	Intestinal, uterine, pelvic.	L R	2 "	"	"	Recovery.	One oviduct as large as a small sausage; sound ovary removed on account of uterine fibroids.
120	Dr. A. W. Barber, Philadelphia.	21	S			Univers. Hosp'l.	June 5.	Omental.	L R	40 "	"	"	"	
121	Dr. D. P. Miller, Huntingdon, Pa.	63	M	1	1	"	July 10.	Extensive parietal.	R	65 "	"	"	Death from uræmia.	Died suddenly from acute uræmia.
122	Dr. J. Stokes, Moorestown, N. J.	27	S			"	Sept. 8.	Universal.	R	1 lb.	"	"	Recovery.	Dermoid cyst containing hair and bone.
123	Dr. J. W. Wilson, Philadelphia.	30	M	2	1	"	Sept. 22.	"	R	50 lbs.	"	"	Death from shock.	Had septic fever and bedsores at time of operation.
124	Dr. D. Rose, Chester, Pa.	56	M	11	1	Private Hosp'l.	Oct. 19.	Omental.	R	40 "	"	"	Recovery.	
125	Dr. J. Roberts, Philadelphia.	51	M	8	2	"	" "	"	R L	30 "	"	"	"	
126	Dr. Meschter, Worcester, Pa.	47	S			Home.	Oct. 25.	None.	L R	15 "	"	"	"	
127	Dr. B. A. Vaughan, Columbus, Miss.	60	W	12		Private Hosp'l.	Nov. 9.	Parietal.	L	70 "	"	"	"	
128	Dr. N. Stokes, Moorestown, N. J.	44	M	10		"	" "	None.	L R	20 "	"	"	"	
129	Drs. Bemus, Jamestown, N. Y.	39	S		1	Home.	Dec. 6.	"	L R	35 "	"	"	"	
130	Dr. J. E. Bauman, Telford, Pa.	49	M	4		"	Dec. 15.	Parietal.	R	40 "	"	"	Death from anæmia.	Her second operation; malignant disease.
131	Dr. W. Goodell, Philadelphia.	28	M			Private Hosp'l.	Dec. 21.	Intestinal, uterine, broad ligament.	R	5 "	"	"	Recovery.	Very difficult operation needing enucleation.
132	Dr. J. B. H. Gittings, Philadelphia.	30	M	2	1	"	" "	" "	L	7 "	"	"	Death from septicæmia.	Dermoid cyst with universal adhesions.

In not a single instance did I refuse to operate, however low the patient. This statement will, I think, be borne out by the following brief history of the five fatal cases:

CASE 118 was operated on in the Hospital of the University. Death ensued on the third day, from hospitalism, I believe, because the operation was not a difficult one and the adhesions were merely omental. There was considerable ascitic fluid and perhaps a drainage-tube should have been used.

CASE 121 was that of a lady aged sixty-three, who had been worn down to a skeleton by a large tumor weighing about sixty-five pounds. She also had albumen in her urine, and was operated on in the Hospital of the University. There were very extensive and firm parietal and omental adhesions, which needed many ligatures. She did extremely well for sixty hours, when, without warning, she suddenly became comatose and died in five hours from acute uræmia. The autopsy revealed one kidney riddled with abscesses and the other affected with interstitial nephritis. The abdominal cavity was wholly free from inflammation.

Kidney disease is a frequent cause of death after ovariotomy. Yet I think that no ovariotomist would be justified in refusing an operation merely on that ground, unless the patient's condition were already a hopeless one from the renal lesions. But it is not always easy to determine whether the disease of the kidney is due to the pressure of the tumor or whether it exists independently. In suspected kidney trouble it would perhaps be safer to administer chloroform in the place of ether, which tends to arrest the action of these organs, and I greatly regret not having done so in this case.

CASE 123, when first put in my hands was in an advanced stage of septicæmia, and I operated on her sheerly from a sense of duty, as her physician, Dr. J. W. Wilson, and the Resident Physicians of the Hospital of the University will, I am sure, attest. She gave birth to a child on July 24, and after her delivery a tumor was discovered by Dr. Wilson. It grew so rapidly, and the woman's health failed so much, that on August 22 he was obliged to tap, removing two and a half gallons of fluid. This operation, while relieving the woman from pressure symptoms, did not improve her health, which became worse and worse. On September 19th, she was carried to the Hospital of the University, never having left her bed from the day of her delivery. Her temperature was over 103°; her pulse never under 130. She had night-sweats, the glassy eyes of septicæmia, and two large bed-sores. She was also very pale and weak. On September 22d, with many misgivings that she would die on the table, and with every preparation made to avert such an end, I operated on her, being assisted by Drs. James F. Wilson, Joseph Stokes, and C. W. Richardson, and by my son. Several times during the operation she seemed to be dying, and hypodermic injections of ether, brandy, and the tincture of digitalis, were liberally used. The cyst weighed about fifty pounds, and was attached everywhere, to abdominal wall, intestines, and omentum. Its walls were rotten, and its contents gave off a sickening odor. Very little blood was lost, but the shock was too great, and she died fifteen minutes after being put to bed.

CASE 130 was another forlorn hope. Five years previously, as Case 8 of my total series, this woman had been operated on by myself for a very large colloid cyst of the left ovary. A year ago her health began to fail coincidently with the appearance of another abdominal tumor. Early in December, when I first saw her, she was so thin, sallow, and reduced in strength, and the fluctuation was so obscure, that my diagnosis was colloid degeneration of the right ovary, probably malignant. On December 13th, I operated at the home of the patient, being aided by Drs. J. E. Bauman, of Telford; H. G. Groff and Vincent Z. Keeler, of Harleysville; Slifer, of North Wales; and by my son. On opening the abdomen, I found its cavity full of a thick jelly, which had escaped from the main cyst evidently some time before. The bowels, agglutinated together, were roughened with papillæ, and enveloped with this colloid material. In addition, the womb, broad ligaments, bladder, and the parietal peritoneum were studded with papillomatous masses. Even the pedicle, which was short, was so covered with papillomata that I had to scrape them off with my thumb-nail in order to find a place in which to lodge the ligature. I did not see her again, but Dr. Bauman informed me that the wound healed perfectly; no abnormal symptoms set in; yet she grew weaker and weaker, dying from sheer exhaustion on the sixteenth day after the operation.

This case is the only one in which I performed ovariotomy twice in the same patient. But I have at present under treatment a lady from whom, four years ago, I removed the left ovary for cystic degeneration, and in whom the right ovary is now rapidly enlarging. The liability of the remaining ovary to cystic disease, which in my cases amounts to a little over 1.5 per cent., strengthens me in the conviction that in women approaching the climacteric, both ovaries should, as a rule, with but few exceptions, be removed. Had this been done, my patient would not now be exposed to the risk of a second operation, and would have been saved grievous disappointment.

This case also makes my third one of colloid degeneration in which the sac had burst some time before the operation. In each the disease was evidently malignant. One survived the operation, and went home; but died a few weeks afterward with a reaccumulation of the colloid material in the peritoneal cavity, and a sprouting out of a crop of papillomata from the cicatrix in the abdominal wall. In the second one both ovaries were removed, and from great emaciation and weakness, the woman became plump and hearty. For two years she did extremely well. Then a tumor made its appearance in the left broad ligament. It gave much pain, caused obstinate costiveness, and rapidly exhausted her strength. I offered to make an exploratory incision to see what could be done, but she refused, and died not long afterward. The history of these cases goes to show that colloid cysts of the ovary are liable either to start with malignancy, or to

degenerate into malignancy, and should, therefore, always arouse suspicion.

CASE 132, from the outset, held out but little prospect of success. Two months previously, the lady had been etherized by several physicians with a view to an operation; but, after a careful examination, it was not attempted. For diagnostic purposes, however, a hypodermic syringe was used to abstract a little of the fluid contents.

When I operated on her (December 21st), she had septic fever, with night-sweats, and her legs were greatly swollen. The tumor, not larger than a child's head, but bulging down into Douglas's pouch, proved to be a suppurating dermoid cyst of the left ovary. It was adherent at every point to the bowels, appendix vermiformis, broad ligament, pelvic fascia, and to the whole hind portion of the womb. In the stripping of the cyst off from the womb, the raw surface bled so freely that Paquelin's cautery had to be resorted to, and, in addition, some of the vessels were tied *en masse*, the needle penetrating uterine tissue. The pedicle was the left cornu of the womb, which was transfixed and tied. The patient did fairly well for a week, giving good promise of recovery; but on the eighth day she began to vomit green matter, and died in a few hours quite unexpectedly.

to occur in the abdominal cavity than within the sac, as in dermoid cysts.

A few words are needed about Case 126. She had a rheumatic heart and the goggle eyes of exophthalmic goitre. The operation was performed at the patient's home in the country on October 25th. On account of the cardiac disease ether was administered with great caution. The operation was an easy one; adhesions did not exist, and both ovaries were readily removed.

I did not see her again, but I learned by a letter from Drs. Meschter and Gerhard, her physicians, that she died on November 27th, thirty-three days after the operation, from inflammatory rheumatism and her cardiac affection. "She seemed to have perfectly recovered from the operation."

With regard to the causation of ovarian cysts, I feel more and more convinced that single life, sterility, or unfruitfulness, whether natural or enforced, has more to do with it than is generally supposed. Thus out of my 22 cases, there were 9 unmarried women and 1 widow. Of the married, there were 1 without a child, 1 with 1 child, and 3 with 2 children. These figures go to show that unless the cycle of reproduction is completed in woman she is plainly violating some great law of her being.

Number.	Name and Residence of Previous Medical Attendant.	Age.	Condition.	Number of Children.	Place of Operation.	Date of Operation.	Nature of Disease.	Result.	Remarks.
1	Dr. G. S. Hull, Chambersburg, Pa.	45	S		Private Hospital.	Jan. 29.	Multiple fibroids; hemorrhage.	Recovery.	Wholly cured.
2	Dr. E. Martin, Philadelphia.	35	S		Univers. Hospital.	April 6.	Multiple fibroids; hemorrhage.	Death from peritonitis.	
3	Dr. W. Goodell.	35	S		"	May 9.	Pernicious menstruation.	Recovery.	Cured.
4	Dr. W. Goodell.	38	W	1	"	May 22.	Dysmenorrhœa.	"	Cured.
5	Dr. S. Weir Mitchell, Philadelphia.	40	S		At Home.	May 24.	"	"	Cured.
6	Dr. F. W. Coover, Harrisburg.	34	M	4	Univers. Hospital.	July 1.	Menorrhagia.	Death from peritonitis.	
7	Dr. E. Martin, Philadelphia.	21	M	1	"	Sept. 17.	Ovaralgia.	Recovery.	Unimproved.
8	Dr. G. S. Hull, Chambersburg, Pa.	30	M	7	"	Sept. 30.	"	"	

In my experience, dermoid cysts are very liable to have firm and extensive attachments, which make their removal far from easy. They are also very vulnerable, taking on inflammation on the slightest provocation. I have had two cases of a small cyst in Douglas's pouch in which violent inflammation followed the use of the aspirator, putting my patient's life in jeopardy, but fortunately ending in obliteration of the sac. In the present case, suppuration was probably due to the use of the hypodermic syringe. Several cases of fatal inflammation have also been reported after an analogous use of the hypodermic syringe in ovarian cysts. But in such cases, owing to the escape of a thinner fluid from the tense cyst, the inflammation is more liable

Of other laparotomies, I had one successful hysterectomy and eight oöphorectomies with two deaths.

The hysterectomy was performed in the hospital of the University on May 22d, and I was aided by Drs. E. Martin and Barber and by my son. The woman was single and forty-seven years old. She had multiple fibroid tumors of the womb, causing menorrhagia and a constant pain which crippled her. The tumors had very firm parietal, intestinal, and omental adhesions, and the incision needed for their removal was a long one. The stalk formed by the cervix uteri was about four inches in diameter. It was brought outside of the wound and secured by two long pins together with Koeberlé's wire

clamp. The whole mass, drained of its blood, weighed thirteen and a half pounds. The recovery was prompt.

The oöphorectomies were performed for the following reasons: Three for multiple fibroid tumors of the wound; two for pernicious menstruation, which crippled the patients for three out of four weeks; two for ovaralgia, and one for ovarian dysmenorrhœa and threatened insanity. The two which died were cases of multiple fibroid tumors of the womb. The ovaries were greatly lengthened out from the growth of the tumors; they had very short and broad pedicles, and were very hard to get at, owing to adhesions contracted by the uterine tumor. Case 8 presents the anomaly of the extirpation of the ovaries for ovaralgia, resulting in a recovery, but not in a cure. My explanation is this, that while I believe the pain was ovarian, it had persisted in the ovarian nerves on account of the opium habit, which the patient had not given up. The left ovary, to which the pain was referred, was prolapsed and had also undergone cystic degeneration. The right ovary seemed healthy. In all the eight cases some evidence of disease, either of the ovaries or of the tubes, was invariably found.

Besides the above, I had a fatal case of exploratory incision. The woman was a great sufferer and much reduced. The tumors proved to be malignant and were not touched. Three days afterwards she died suddenly with symptoms of embolism.

DISINFECTANTS.

PRELIMINARY REPORTS OF THE COMMITTEE ON DISINFECTANTS OF THE AMERICAN PUBLIC HEALTH ASSOCIATION.

VI.

CARBOLIC ACID.

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CARBOLIC acid may be said to have been recognized as an antiseptic from the time of its discovery by Runge, in 1834, in the distillate from coal-tar. This is sufficiently attested by the analogies which led to the use of the name *coal-tar creasote* and the well-known preservative action of the product from wood. In Watt's *Chemical Dictionary* we are informed concerning the properties of carbolic acid, that "fish and leeches die when immersed in the aqueous solution and their bodies subsequently dry up on exposure to the air without putrefying." The deodorant action of the acid was recognized as due not to a destruction of the offensive products of putrefaction, as in the case of some chemicals, but to an influence on the process which gave rise to them. When this process was shown to be dependent on the development, growth, and multiplication of certain bacterial forms, a destruction of their germs, or at least an interference with the conditions congenial to their growth, was of necessity assumed. On this Professor Lister, in 1867, based the use of the acid in Antiseptic Surgery. The success attending his method of treatment spread the fame of carbolic acid; and its known and well-proved antiseptic properties led to its investiture with disinfectant properties which were by no means proved. It was used largely as a disinfectant in Europe, and for several years was held in a similar high repute in this country.

The first experiments to test its value failed to distinguish between the antiseptic and disinfectant properties. As late as 1870, Crace Calvert's experiments[1] had a reference only to the delay in the exhalation of putrefactive odors from organic substances. Albumen and flour-paste, which became offensive in five and seven days respectively, when exposed to the air, were preserved for eleven and twenty-five days when mixed with five per cent. of the acid. Even the experiments of Schroeter,[2] in 1878, seem mainly directed to define an antiseptic value. A liquid characterized only as teeming with bacteria, had its contained organisms rendered motionless and precipitated by the addition of 0.05 per cent. of the acid—a dilution of 1 : 2000. Raw flesh in a dilution of 1 : 10,000=0.01 per cent., began to putrefy at the end of six days; in 1 : 2000=0.05 per cent., the liquid, notwithstanding the presence of the flesh, remained clear and without odor for four weeks; in 1 : 1000=0.1 per cent., the preservation was prolonged for from six to eight weeks, while in 1 : 500=0.2 per cent., the liquid remained clear and free from all organisms for many months. Hence he considered that a solution containing 0.1 per cent. of the acid is one in which no low organisms can exist, and that a dilution of 0.01 per cent. will retard their development for some time.

The acid was recognized as being specially destructive to the moulds, a much smaller quantity sufficing to destroy them than was requisite to insure protection from the bacteria of putrefaction. Thus, Baxter[3] quotes Manassein as authority for the statement that one-sixteenth of one per cent. deprived the spores of penicillium of their germinating power; and Schroeter found that the vapor of the acid arrested the development of penicillium and mucor and destroyed their spores. One thorough fumigation of a mould-infected chamber acted so radically that for six weeks afterward no trace of the fungi was discovered.

It became evident, however, to the experimenters having this matter in view, that the acid might interfere with the development of the bacteria of putrefaction without destroying their power of multiplication when transferred to a more congenial environment. Hence, culture experiments were instituted on the bacteria that had been subjected to the influence of the acid. Moreover, it was recognized that experiments on the bacteria of putrefaction were by no means satisfactory as arguments on the vitality of the disease germs which were concerned in the process of disinfection. Hence were instituted experiments on certain infective matters.

Braidwood and Vacher investigated the action of

[1] Chemical News, London, 1870, Vol. xxiii., p. 281.
[2] Beitrage zur Biologie der Pflanzen, Breslau, 1878, 3 Heft. S. 30 et seq.
[3] Report of the Medical Officers of the Privy Council and Local Govt. Board, London, 1875, p. 216 et seq.

the acid on vaccine lymph in 1870, and verified their results in 1876.[1] On four children vaccinated with lymph containing 2.5 per cent. of acid, six vesicles were obtained at ten points of insertion. In these instances the lymph was removed from the arm, mixed in a watch-glass with the acid and applied at once. A second group of children, five in number, were vaccinated in a similar way; but the mixtures used had been preserved in Husband's capillary tubes for seventeen days, three weeks, four weeks, and six weeks respectively. These inoculations all failed and the children afterwards underwent successful normal vaccination. Similar results were obtained by trying the carbolated lymph on a heifer.

Meanwhile, Dougall, in 1873, operated on vaccine lymph, making use of subsequent vaccination as the test of the action of the carbolic acid on the virus. He exposed the lymph in a bell jar of one cubic foot capacity for thirty-six hours, and after mixing it with glycerine and water, sealed it up in capillary tubes until used for vaccination. The lymph thus treated produced satisfactory vesicles. Led by this result, he then treated fresh vaccine with one per cent. of pure carbolic acid and found its infective property undiminished. But about the same time Hoppe Seyler[2] determined that two per cent. of the acid destroyed the activity of vaccine virus; and two years later Baxter, in his careful work for the British health authorities, was also successful in destroying the virus, as proved by subsequent inoculation with the disinfected matter. He exposed dry vaccine to carbolic acid vapor in a bottle one-third filled with the acid and found that when the period of exposure was less than thirty minutes the infection was but slightly if at all impaired. When the exposure extended to thirty minutes, disinfection was effected in one specimen, while another produced two vesicles for three insertions. In two instances in which the exposure was prolonged for sixty minutes the virus proved inefficient when subsequently used. He also found that while the presence of one per cent. of carbolic acid in liquid vaccine exerted no influence on its activity, two per cent. destroyed its infective power with certainty.

Dougall, returning to this subject in 1879,[3] concluded from some of his experiments that if the vaccine were used immediately after its exposure to the carbolic acid, or if hermetically sealed in the meantime, the virus would fail, but that if exposed to the air after being carbolized it would recover its activity. Thus sixty parts of vaccine and forty of acid, when used immediately after mixture, gave no results, but when used after a free exposure to the air during fourteen days, it was found to have recovered its active properties. He therefore concluded that the infective particles of the lymph became covered with the coagulated albumen of the vaccine liquid, and that in vaccination the free acid coagulated the contents of the dermal capillaries and rendered absorption impossible. But these experiments of Dr. Dougall did not succeed in the hands of J. W. Miller, of Dundee.[1] He prepared four specimens, each containing two parts of carbolic acid and three of vaccine. The mixtures were exposed to the air for fourteen days before use; and in each of the four experiments the lymph was barren. Two experiments were made with vaccine which had been exposed to the air for fourteen days after its admixture with five per cent of the acid; in one of these the lymph was barren, in the other an imperfect vesicle was obtained. One experiment, however, appeared to verify Dr. Dougall's results; equal parts of vaccine and glycerine of carbolic acid, after exposure to the air during fourteen days, yielded a good vesicle. But Miller was inclined to view this result with suspicion, and attributed it to pure lymph rubbed off by inadvertence from some of the other points of insertion on the child's arm.

But other liquids containing germs or infective matter were used by the investigators. Rosenbach,[2] in 1873, injected dogs and rabbits with unhealthy pus, to which five per cent. of the acid had been added, the general tenor of his results showing that disinfection had been accomplished. Baxter, two years later, experimented with the virus derived from the peritoneal cavity of guinea-pigs that had succumbed to infective peritonitis. The length of time during which the virus was exposed to the action of the acid varied from thirty minutes to three hours, thorough admixture having been effected in the meantime. In one set of experiments, two per cent. and one per cent. of the acid destroyed the infection, as the animals inoculated with the mixture did not suffer. In a second series of experiments, one per cent. was efficient for protection, but with a virus containing only 0.5 per cent., the animal died in forty hours from acute cellulitis. In a third series, one per cent. was efficient, but death occurred with 0.5 per cent. in eighteen hours. In the fourth series, one per cent. proved again protective against the infective material. Similar inoculation experiments with the virus of glanders showed that two per cent. of carbolic acid destroyed its infection, while 0.5 per cent. failed to act as a disinfectant.

By culture-experiments, Sternberg, in 1883,[3] showed that the micrococcus of pus has its vitality destroyed so that it fails to develop when introduced into a sterilized bouillon after an admixture of two hours with 0.8 per cent. of the acid, while with 0.5 per cent. its subsequent cultivation was successful; and that the micrococcus of septicæmia is destroyed by 0.5, but not by 0.25 per cent. This defines the germicide limits of the acid in respect to these organisms. On the other hand, when carbolic acid was added to the sterilized culture-liquid, a much smaller percentage than was needful for a germicidal action sufficed to prevent the development of the micrococci of pus and of septicæmia when implanted for cultivation. Thus, 0.2 per cent. prevented the development of the organisms, while 0.1 per cent. failed to protect the culture-liquid from its attack. Similar results were obtained with the micrococcus

[1] British Med. Association. Scientific Reports, London, 1876.
[2] Arch. Gén., May, 1863. p. 633.
[3] British Med. Journ., 1879. vol. ii. p. 726.

[1] Med. Record, Sept. 1873, p. 427.
[2] Practitioner, Sept. 1884, p. 146.
[3] Amer. Journ. Med. Sciences, April, 1883.

of septicæmia. This defines the antiseptic limits of the acid in respect to these organisms.

Baxter was of opinion that the length of time during which the acid was permitted to act upon the infective material was of no importance, provided that thorough mixture was insured. This implies a belief in the instantaneous action of the acid on the active principle of the virus. Some experiments by Koch[1] in 1881, Salmon[2] in 1883, and Schell and Fischer[3] in 1884, indicate that time of exposure, as well as strength of solution, enters as an element into the question of disinfection. Thus the last-mentioned investigators, operating on fresh tubercular sputa, found that disinfection was accomplished by treatment with three, two, or even one per cent. of acid for twenty hours; but that five per cent. failed to disinfect when the period of digestion was limited to two hours. Post-mortem examinations discovered sound organs in the animals inoculated with the former mixtures, and tubercular disease in those of the specimens treated with the latter and stronger mixture. Salmon, operating on the micrococcus of fowl cholera, obtained the destruction of the virus by one per cent. of the acid, the test being inoculation. In some experiments in which the test was cultivation, one per cent. succeeded and 0.5 per cent. failed to destroy the power of germination when the digestion with the acid was continued for one and a half hours; but 0.5 per cent. was successful when the digestion was prolonged for twenty-four hours.

The bacilli and spores of anthrax have been subjected to a number of experiments, of which those of Davaine[4] are the earliest. The blood of an infected animal, diluted with one hundred parts of water, was used. This was found to be speedily fatal to guinea-pigs when injected under the skin, but its virulence was destroyed on treatment for an hour with one per cent. of carbolic acid. Koch found that the *spores* of anthrax had their vitality destroyed by immersion for twenty-four hours in a five per cent. aqueous solution of the acid. A two per cent. solution was not efficacious; but after five days' digestion in this solution the development of the spores was somewhat retarded. Further experiments showed entire failure of disinfection with a one and two per cent. solution; success after seven days with three per cent.; after three days with four per cent. and after two days with a five per cent. solution. Culture in gelatine was the test employed in these instances. On the other hand, the *bacilli* were destroyed by exposure of from two to twenty-five minutes in aqueous solutions containing from five to one per cent. of the acid, the test being culture in solidified blood-serum. The culture in gelatine of the anthrax *spores* was not prevented by their antecedent immersion for one hundred and ten days in oil containing five per cent. of the acid nor by seventy days in alcohol of the same carbolic strength. An oleaginous five per cent solution diminished the development of the *bacilli* in three or four days, and accomplished disinfection on the sixth day, as shown by the failure of subsequent efforts at cultivation. Even a one per cent. solution in oil destroyed their power of development on the sixth day, but it is to be observed that a similar result followed the use of pure olive oil. Arloing, Cornevin, and Thomas[1] found that the virulence of anthrax spores persisted after an immersion of forty-eight hours in alcohol containing two per cent. of the acid, while it was destroyed by the action of the same percentage in water. Blyth[2] also experimented with these spores. He showed the inefficiency of the carbolic acid powders—Calvert's, Jeyes's, and McDougall's. The spores invariably developed notwithstanding contact with the powder for twenty-four hours. A one per cent. carbolic solution had no effect on their development; five per cent. retarded their growth; twenty-five per cent. in alcohol rendered them incapable of germinating in broth.

While these investigators were testing the power of carbolic acid on certain disease-producing substances, many series of experiments were performed on the bacteria of putrefaction, with a view of determining the germicidal as well as the antiseptic powers of the acid on the organisms, the latter being expressed by the quantity of acid required to be added to a nutritive liquid in order to restrain their growth, and the former to prevent them from multiplying when subsequently transferred to a suitable culture-liquid.

Baxter's experiments showed that 0.5 and 0.1 per cent. were required for the germicidal action, the larger percentage being requisite when the liquid was albuminous. Hamlet[3] operating on Pasteur's liquid containing B. punctum, B. termo, and M. crepusculum, found a slight diminution in the number of moving bacteria after standing five days mixed with one per cent. of carbolic acid, while with five per cent. few of the bacteria showed signs of movement. Nevertheless, in this last experiment their vitality persisted, for when a little of the solution was transferred to a large quantity of Pasteur's liquid the whole was in two days teeming with bacteria. Notter's[4] results were to the effect that 3.3, 5, and 6 per cent. of carbolic acid did not destroy the movements of the bacteria in a putrid infusion of beef, even after the lapse of seven days. Jalan de la Croix[5] found that when two drops of a liquid teeming with bacteria are added to a sterilized meat-juice, the acid must be present in the proportion 1 : 669 to prevent development; but to produce a germicidal effect in this weak bacterial liquid, acid in the proportion 1 : 22 had to be added. The bacteria in broken-down meat infusion were killed by immersion for twenty-four hours in a solution of 1 : 22, although not in 1 : 42; but to prevent the development of germs when this liquid was introduced into a sterilized infusion it was necessary to give them a preparatory soaking for twenty-four hours in an acid of the strength 1 : 2.66, for a solution of 1 : 4 did not deprive them of their

[1] Mitt. a. d. Kais. Gesundheitsamte, 1881, vol. i.
[2] Report Dept. Agriculture, U. S., 1883.
[3] Mitt. a d. Kais. Gesundheitsamte, 1883, vol. ii.
[4] Comptes Rendus, Oct. 13, 1873.

[1] Comptes Rendus Soc. de Biolog. Septiéme serie, t. iv.
[2] Med. Times and Gazette, Oct. 11, 1884, p. 498.
[3] Jour. Chem. Soc., London, 1881, xxxix. p. 326.
[4] Dublin Journ. Med. Sciences, 1879, Vol. 68, p. 196.
[5] Arch. für Experimental Pathologie, Leipzig, 1881, p. 175 et seq.

fecundity. To prevent the decomposition of boiled meat-juice by germs falling into it from the air 1 : 402 was required; but for an unboiled infusion 1 : 502 sufficed; and to prevent the development of the germs in the former when transferred to a sterilized liquid, 1 : 22 was required, while those in the latter were not deprived of their germinating power by 1 : 10. Vallin[1] justly remarks of De la Croix's experiments, that they must be accepted with some reserve, since it is contrary to the general experience that a boiled liquid should require more of an antiseptic to preserve it than one which had not been boiled. Sternberg found that 0.2 per cent. was antiseptic in view of B. termo, but one per cent. was required for action as a germicide. He further found that the bacteria in broken-down beef-tea retained their vitality after an exposure of two hours to a four per cent. solution.

Turning from these experiments in which the carbolic acid was used in the form of liquid to those in which its vapor was employed, we find the following, in addition to those already mentioned in connection with antiseptics, the destruction of moulds, and of the vaccine efficiency.

Perrin and Marty[2] failed to prevent the decomposition of barley-water, milk, blood, urine, etc., by the atomization of a five per cent. carbolic liquid. Schotte and Gärtner[3] volatilized carbolic acid by heat in a closed chamber in which were exposed to the action of the vapor liquids containing bacteria and woollen cloths that had been dipped in these liquids, determining at the close of the exposure whether the fecundity of the bacteria had survived by transferring them to a sterilized culture liquid. For efficient disinfection rapid evolution of the carbolic vapors was required. The bacteria in the exposed liquids were destroyed by the diffusion of 7.5 grammes of carbolic acid per cubic metre, but those in the impregnated cloths required a stronger diffusion, 12.5 grammes, when the fabrics were damp, and 15 grammes when they were dry.

From a survey of these experiments on carbolic acid performed since the introduction of methods of precision in testing germicidal or disinfectant properties the value of the acid in these respects may be determined.

One per cent. in an aqueous solution has destroyed with certainty the virulence of septic and purulent matters, of the tubercle bacillus, and of the micrococci of fowl cholera; some of the organisms related to putrefaction have also been destroyed by solutions of this strength. But to produce these results in some instances the contact with the disinfectant had to be continued for many hours. Two per cent. of the acid in an aqueous solution was required to destroy the infection of vaccine and glanders; but some of the experiments on the former seem to indicate that no destruction of the virus was effected, but merely a suspension of its powers, which were recovered on the dissipation of the acid by subsequent prolonged exposure to the air. The spores of anthrax did not lose their ability to germinate unless treated with a five per cent. solution for twenty-four hours or with a weaker solution for a longer time. Lastly, as showing how little reliance can be placed on carbolic acid as a disinfectant except in special instances, as in those above mentioned, where its effects have been determined, the organisms in broken-down beef-tea were not deprived of their reproductive powers by treatment with four per cent. acid, Sternberg, nor with six per cent., Notter, nor with ten per cent., De la Croix; the last observer indeed asserts that about thirty per cent. (1 : 2.66) was needful to effect this object.

The large percentage of the acid required for disinfectant or germicidal action when applied directly in the liquid form, prepares us for its failure when used in the form of vapor. Douglas and Baxter, from the results of their experiments on vaccine, concluded that aërial disinfection by carbolic acid vapor was practically impossible. The atomizer, however, offered better facilities for the diffusion of the vapor, and Strott[1] in 1876, and Wernich[2] in 1883, recommended the use of the spray as protective against albuminoid contagious principles. But the experiments of Perrin and Marty and of Schotte and Gärtner demonstrated its inutility as against bacterial life.

The valuable antiseptic properties of the acid do not come within the scope of this article, although they have been in a measure indicated incidentally.

[1] Traité des Disinfectants et de la Désinfection, Paris, 1882, p. 163.
[2] Bulletin de la Soc. de Chir., 1879, t. v. p. 153.
[3] Deutscher Verein für Oeffentliche Gesundhpflege, 1880, t. xii. p. 337 et seq.

[1] Ventilation und Disinfection der Wohnsäume, Holtzminder, 1876, p. 19.
[2] Real-Encyclopädie der Gesammte, Heilkunde, 1883, B. 15, S. 170 et seq.

NOTE ON THE TREATMENT OF ONYCHIA.

BY CHARLES W. DULLES, M.D.,
SURGEON TO THE OUT-PATIENT DEPARTMENTS OF THE HOSPITAL OF THE UNIVERSITY OF PENNSYLVANIA, AND OF THE PRESBYTERIAN HOSPITAL

PRACTICE in the out-patient departments of two hospitals has brought to my notice a number of cases of this stubborn disorder, and has led to my adopting a method of treatment which is so satisfactory that I think it worth while to call attention to it. It is not new in principle, but I think the details of it are not to be certainly gathered from the suggestions which are to be found in some of the works on surgery.

The plan I refer to consists in washing the usually stinking finger or toe-end with a weak solution of permanganate of potassium, trimming the nail back to where it is attached to the matrix, dusting on a *fine powder* of iodoform, and covering the whole in with turns of a narrow strip (not more than quarter of an inch wide) of adhesive plaster. The plaster I prefer is the rubber adhesive plaster, which fits better, because it is softer than ordinary adhesive plaster, and is much easier to apply, because it requires neither heat nor moisture to fix it.

By this means, I have succeeded, so far in every instance, in getting rid of the pain, which is often excruciating; of the odor, which is almost intolerable; of the evidences of high inflammation, which are always present; and in securing a speedy re-

covery of what by other methods has proved an exceedingly intractable disorder.

The secret of success, I believe, lies in attention to the details of this method. The finger or toe-end must be thoroughly cleansed with the permanganate solution; the nail must be gently, but thoroughly, trimmed back till all of it that is dead is removed; the iodoform must be *finely powdered*; the adhesive strip must be smoothly applied, and in such a way as to cover the whole of the end of the finger or toe.

This latter step is accomplished by taking the thin strip of plaster, and applying it first on the proximal side of the nearest interphalangeal joint, *obliquely to the long axis of the finger or toe*, and carrying it up toward the end and round until it begins to return; by continuing these turns, the strip, with a little guidance, will gradually make first a latticed covering, and then cover up the interstices of this lattice, so as to make a complete cap. If necessary, a few strips may be applied directly over the end of the finger or toe, so as to fill up any gaps which would require too much plaster to be covered-in in the, so to speak, natural way.

Such a dressing should be removed as soon as the pain or the stinking is renewed. But usually it will give immediate and entire relief from both; in which case, I think, it is advisable to remove it at any rate in two or three days to see how the part is getting along. The second dressing, of the same kind, will often be applied to a healthy granulating surface, and form a dry, clean scab, under which the member will heal up perfectly.

I have experimented in cases which were doing well under this treatment, and have found that the adhesive plaster part of it is indispensable. As soon as it was left off the cases did badly.

Toes, I have found, are harder to cure than fingers, for obvious reasons. But in the case of both fingers and toes, I have seen children cease their complaints, resume their plays, begin to get good sleep at night, and recover the appearances of health which pain had robbed them of.

Finally, I would say that I think it important in these cases to see that the patient's bowels are once well cleared out, and then kept in good order, and to give a ferruginous tonic.

This may seem an insignificant kind of surgery, but it is not insignificant to the little sufferers, nor to their parents, nor, my observation would lead me to believe, to the medical men under whose care the patients come.

A CASE OF DOUBLE NARCOTIC ADDICTION—OPIUM AND ALCOHOL. IMBECILITY. RECOVERY.

BY J. B. MATTISON, M.D.,
OF BROOKLYN, N. Y.

THROUGH the courtesy of Drs. T. Gaillard Thomas, of New York, and Wm. Bayard, of St. John, N. B., there came under the writer's care, last year, a case of combined opium and alcohol taking, presenting a history and result of such importance as to render its recital probably one of interest.

Mrs ——, of Canada, æt. 34, in the summer of 1881 passed through her second accouchement during the eighth month of gestation. Her recovery was tedious, involving four or five months, during which she had much discomfort from alvine torpor, and also underwent an operation for the relief of fistula in ano. The latter was attended by severe pain, to relieve which her medical advisers gave morphia, hypodermically, and supplying her with a syringe, instructed her and the attendant in its use. This was in July, and the initial dose of the morphia was an eighth of a grain, repeated three or more times daily when the pain was severe.

She made a fair recovery from this illness, except that the power of the lower limbs was largely lost, due, it was thought, to the morphia—which she had steadily taken—and a lack of active exercise.

She had now become a confirmed habitué, and during the next two years used her opiate in increasing quantity and frequency, often repeating it every three or four hours.

During the autumn of 1883 she came under the care of a medical gentleman who was called to relieve her of severe abdominal pain and nervous derangement. Prior to this time no attempt had been made to abandon the morphia. Her new professional adviser, appreciating her situation, strongly urged an effort in that direction, but without success. Her condition had steadily grown worse, aggravated as it was by an immoderate use of brandy, of which she took at times from twelve to sixteen ounces daily.

From October, 1883, her mental and physical decline was marked, the most prominent symptoms being anorexia, insomnia, nausea, incessant thirst, subsultus, loss of memory, delirium, hallucinations, and partial imbecility. Her physician now insisted on stopping her stimulants, and succeeded with the brandy, while the morphia, which had been increased to several grains—three to five per diem—was reduced to one or two injections daily.

Despite this treatment her mental and physical status steadily deteriorated until she became completely imbecilic, and in this condition, on December 21, 1883, she came under the writer's care. So weak was she prior to leaving home, that some of her friends deemed it hazardous to make the effort—fearing she would not survive the journey—but, under the watchful care of Dr. Bayard, it was safely effected. Her physical debility on arriving was so great that she was carried from her carriage. Mentally she was a wreck. Delusions were prominent and hallucinations of sight, sound, and touch almost constant, that of touch being especially marked; patient fancying bugs and reptiles crawling over her. Her expression was idiotic; she was utterly unable to converse intelligibly, and her voice in speaking speedily sank to a whisper and was lost. In fact, such mental ravages from opium we never met.

Physically she was partially prostrated, pulse frequent and feeble, marked anorexia, furred tongue and alvine torpor: in fine, all the symptoms before noted, except delirium and subsultus. During her coming, in order to maintain strength, she had taken milk-punch freely, and was given one or two half

grain injections of morphia daily. Such was her status on arrival.

There was no history of hereditary insanity. The case seemed clearly one of profoundly, pernicious results from her double addiction, aggravated by a laudable effort to remove the cause. This being our belief, the prognosis was favorable, an opinion endorsed by Dr. John C. Shaw, Superintendent of the Kings County Insane Asylum, who was called in consultation, and verified by the result, as the further record of the case will show.

As a prelude to active treatment, the patient was given a mild mercurial, which acted well. No alcohol was allowed from the outset, and at the end of a week the morphia, which previously had been given in small doses by mouth at bed-time, was quite abandoned, and reliance placed on large doses of Indian hemp to secure sleep. As tonics, she was given daily seances of electricity, with syr. hypophos. iron, strychnine, and quinine, in two drachm doses, ter die, and full feeding.

The good effect of this regime soon declared itself, for in less than a fortnight signs of improvement presented. The earliest of these were mental. The delusions lessened and hallucinations departed, the last to leave being those of touch, which persisted for some time after the patient was able to realize that they were only the vagaries of her disordered brain. With this amendment came a better brain status in other ways. The imbecile look gave place to one of increasing intelligence, the power to converse rapidly returned, and within six weeks all traces of mental aberration had vanished. Meantime her physical condition gradually improved, though not so speedily as the mental. The appetite was slow in returning, but her muscular strength, especially in the lower limbs, the loss of which for two and a half years had prevented exercise, increased steadily, so that at the end of eight weeks she was able to take walks, drives, go shopping, attend church, etc., in fact, more out-of-door exercise than she had enjoyed for years. Her improvement in every way was notable, and persisted with little interruption until March 4, nearly eleven weeks from the date of her coming, when she left our care. Tidings, direct and indirect, received of late report her doing well.

This case presents several points worthy of detail. In our judgment, the course of the medical gentleman in supplying this patient with a hypodermic syringe and solution of morphia, with instructions for self-taking, unless absolutely unavoidable, was—to put it mildly—exceedingly indiscreet. Such action and advice are almost *certain* to end in addiction. The effect, even under professional attention, is too often disastrous, and the chance of escaping when left to caprice of the patient is small indeed. We believe that patients should *never* be allowed to give themselves injections, if at all possible to avoid.

When her initial illness ended, this patient was an opium habitué. A much more limited time than that will often suffice. We have repeatedly known as many weeks to beget addiction.

This case adds another to the instances in which addiction to one narcotic tends to excess in another. While these are infrequent as compared with those in which one is used, they are sometimes quite notable. We recall that of a Canadian gentleman who some time ago consulted us, who had taken for several years 10 to 20 grs. of morphia, subcutaneously 60 to 90 grs. of chloral, and 1 to 2 pints of whiskey daily. Physical examination disclosed organic heart lesion, and care of this case was declined. As a rule, the ruinous results exceed those of a single addiction, while the prospect of permanent cure is always less hopeful. In our patient the pernicious effect on the brain was notable, more so than we have ever observed. While deviations from normal cerebral action are sometimes observed in cases of confirmed opium-taking, it is rare that they are so pronounced as in this instance. Doubtless they were aggravated by the alcohol, yet morphia was the main factor. And it is of interest to note that the attempt at renouncing the narcotics intensified the mental disorder. Obersteiner (*Brain*, Oct. 1882), demurring to Levinstein's statement that the psychical disturbances caused by morphia cease within a few hours, affirms that "mental diseases arising in the course of morphinism are of the most intractable kind when once fully developed. Not only do they not disappear on depriving the patient of morphia, but they then usually get worse." This case tends to prove the latter part of his statement. As one medical gentleman informed us, "the condition in which you saw her was the result of the addictions aggravated by the attempt to quit them." But the mental disorder was not of the "most intractable kind," for improvement was prompt and progressive, much more so than anticipated, as it was thought several months rather than weeks would be needed to repair the damaged brain.

Regarding alienation caused by opium, Obersteiner thinks it frequent, asserting that "a man who consumes large quantities of morphia during a number of years will display many nervous symptoms, and that the continued intoxication attacks the psychical much more constantly than the somatic life." He further states: "The degree of mental aberration arising from protracted use of the drug is very variable. There may indeed be individuals who retain their power of mind in spite of it, but the number is much greater of those who betray a marked alteration of their intellectual and moral life, and in not a few cases finally the point of distinct aberrations is reached. This usually consists of a depressed state with suicidal tendencies, occasionally with violent excitement and hallucinations;" and he sums up his views with the statement that "in most cases the protracted use of morphia in large doses is followed by psychical alterations of a lasting nature which may amount to decided insanity."

With these opinions we are not in full accord. Our experience has been much more favorable. We have observed many cases of opium addiction, among those who had taken morphia in large amount for several years, yet the number with marked mental derangement has been small. Depression has been common, so, too, irritability of temper, but we recall only one instance in which suicidal or homicidal tendency existed, and but a single case that we deemed "decided insanity." Far oftener,

physical symptoms presented. In some form these have been almost constant, so that on this score also, our observation has been at variance with Obersteiner.

Regarding treatment, one point deserves special mention—that is, the effect of Indian hemp in large doses. In this instance it quite maintained the power ascribed to it by Moreau of removing hallucinations. Again and again—often by the patient—was this noted. Its hypnotic action also was very satisfactory. As a soporific in ex-opium habitués, Cannabis Indica is of great value. They may be peculiarly susceptible to its good effect, but certain it is we know of nothing equalling it, and employ it almost exclusively. For details regarding its use, vide *Canada Medical Record*, Jan. 1885.

Finally, the history of this case is of value as warranting hope of entire recovery under conditions that seemingly offer little promise of success.

HOSPITAL NOTES.

MEMORIAL HOSPITAL, ORANGE, N. J.

Service of DR. WILLIAM PIERSON.

HERNIOTOMY PERFORMED UPON A PATIENT HAVING FACIAL ERYSIPELAS; RECOVERY.

(Reported by JAMES Y. SIMPSON, M.D., House Surgeon.)

MARY C., æt. 28, servant. The day before her admission, which was the 12th of December, the patient noticed a tumor in her right groin, which gave her much pain. The pain continued during the night, and was accompanied by vomiting. It was impossible to ascertain whether the vomiting was stercoraceous or not. No intestinal evacuation occurred after the appearance of the tumor, and a large enema failed to produce one. On admission, the patient was found to have a tumor in the right groin, which was dull, elastic, painful, and as large as an egg. On the face was a well-marked erysipelatous inflammation, confined chiefly to the left side and sufficiently intense almost to close the eyes; this, the woman said, had appeared three days previously. The patient was placed upon the table, and reduction of the hernia attempted under an anæsthetic. This, however, proved unsuccessful, and, after due consultation of the surgeons, it was decided that, in view of the pain and vomiting, the intestine was strangulated, and inasmuch as taxis had failed, the only resort was herniotomy—this operation offering a much better chance than delay, in spite of the facial erysipelas. After shaving the part and washing it with a solution of mercuric chloride, the usual incision was made, and the tissues divided upon a director until the sac was reached.

Digital exploration then showed that the hernia was femoral, the band of constriction being internal and anterior to this ring. The constricting band was easily divided and the intestine returned without opening the sac. The edges of the wound were brought together with a continuous catgut suture, and the wound dressed with carbolized gauze, absorbent cotton, oakum, and a spica bandage. The operation was performed by Dr. William Pierson, assisted by the surgical staff. A solution of bisulphite of soda was applied to the erysipelas.

During the night the patient vomited a few times, and had a temperature of 103½° the next morning. Her pain was slight and easily controlled by sulphate of morphia administered hypodermatically.

The following day her temperature was 102¾°, and she complained of "uneasiness" across the abdomen. The erysipelatous condition of the face was more marked, one or two blebs appearing on the ear. On the next morning, her temperature was 100°, and the "uneasiness" of the bowels continuing, an enema was given and followed by relief.

From this time on her temperature remained normal, and the erysipelas was so near well on the seventh day after her admission that no further treatment was necessary. On the tenth day after the operation, the original dressing was removed from the wound and union found to be complete, with the exception of its lower extremity, which was discharging a small amount of pus. After a few days, the patient was able to return home, having entirely recovered from the operation and the erysipelas. This result is noticeable, as antiseptic precautions alone were employed to obtain it.

MEDICAL PROGRESS.

IMPACTED CASEOUS GLANDS IN THE TRACHEA CAUSING SUDDEN DEATH.—At a recent meeting of the London Pathological Society, DR. PERCY KIDD showed this specimen, taken from the body of a boy aged 7. He was noticed to have a croupy cough, and somewhat stridulous breathing during life. No physical examination had been made. One night, after running about in the daytime, and having complained of no urgent symptom, he suddenly awoke, screaming, coughing, and struggling for breath. He died in about ten minutes. At the autopsy the mediastinal glands were all enlarged and caseous; the enlargement was most marked on those glands lying in front of the trachea; the lower end of the trachea was blocked up by an oval, partially softened caseous gland, which had been extruded through an ulcerated opening in the anterior wall of the trachea, just above the orifice of the left bronchus. The perforation led into an encapsulated space in front of the trachea, which contained caseous débris and traces of gland tissue. The heap contained a few miliary tubercles in their upper lobes, but were otherwise healthy. The heart was firmly contracted and practically empty, and was quite healthy. All the other viscera were healthy. It was remarkable that although the child evidently died of asphyxia there was no distention of the right side of the heart found after death.

Dr. GOODHART had seen a very similar case; an ulcer had formed in the left bronchus through which some softening caseous gland had been squeezed, and plugging the bronchus had caused sudden death. In another case he had reason to suspect this condition, but there was no *post-mortem* examination.—*Med. Times*, Feb. 21, 1885.

PULSATILE ANGIOMA.—M. LAEDRICH, in the *Archives de Med. et Pharm. Militaires*, summarizes the treatment of pulsatile angioma by electricity as follows:

1. It must be certain that the point of the needle is in direct contact with the blood to be coagulated. A Pravaz needle is useful for this purpose.

2. The positive pole must be in relation with the tumor.

3. The negative pole is advantageously placed at a distance from the tumor—*e. g.*, in the palm of the hand.

4. Moderate currents only should be employed in the vicinity of nervous centres.

5. The Gaiffe pile is a satisfactory instrument for the operation.

ABDOMINAL SECTION.—At a recent meeting of the Midland Medical Society, MR. LAWSON TAIT read a paper entitled "General Summary of Conclusions from 1000 Cases of Abdominal Section." Mr. Tait first considered the question of anæsthetics, and stated that he preferred a mixture of two parts of ether and one part of chloroform given in a Clover's apparatus; this mixture he found did not cause bronchitis, and did not diminish the excretion of urine, and was less often followed by vomiting than any other anæsthetic he had used. He defined the term "abdominal section" as an operation in which the peritoneum was involved. Mr. Tait also presented an analysis of his cases, in all of which the peritoneum had been involved. The general death-rate was 9.3 per cent. Mr. Tait gave as the explanation of the much lower death-rate of his later operations the following reasons: 1st. Greater experience; 2d. The complete discontinuance of the clamp in ovariotomy and of the ligature in hysterectomy; 3d. Also the earlier stages of the disease at which operation is now done. Mr. Tait laid great stress upon the last factor in influencing the mortality after operations.—*Lancet*, February 21, 1885.

DIAGNOSIS OF RENAL DISEASE.—The advance that has been made in the diagnosis of renal diseases was well exemplified in a case brought before the students, at the Western Infirmary, by Professor George Buchanan. The patient was a woman, the chief feature of whose ailment was the presence of a large quantity of pus in the urine. The interesting point about the case was that, previously to adopting operative measures, steps had been taken to demonstrate satisfactorily that the right kidney was the seat of mischief, and that the other one was sound. This was accompished by the use of a recently invented German instrument, by the introduction of which into the bladder, the urine from each kidney is collected separately, and the seat of suppuration determined. The correctness of this diagnosis was verified by the subsequent nephrotomy, performed by Professor Buchanan.—*British Med. Journal*, Feb. 28, 1885.

THE TREATMENT OF LUPUS.—DR. WALTER G. SMITH, after an exhaustive discussion upon lupus and its treatment, concludes that the treatment by linear scarification, introduced by Squire, and that of the curette, or sharp spoon, proposed by Volkmann, and which is best followed by immediate cauterization of the raw surface, are the two methods most worthy of trial. He summarizes the individual features of the two methods as follows:

Erasion, or scraping—

1. Differentiates sound from diseased tissue, for healthy skin will not give way to the spoon.

2. It is rapid of execution.

3. It is, as a rule, not followed by much after-pain.

4. The scraped surface heals wonderfully quickly.

5. It leaves a level and tolerably sightly cicatrix.

Scarification—

1. Is applicable to some situations, and, in some cases, where erasion is unsuitable or inadvisable.

2. It is less painful, and, to some persons, a less repellant operation.

3. There is a minimal loss of substance.

4. It is especially adapted for diffuse non-ulcerating infiltrations.

5. The scar left is scarcely distinguishable from the healthy skin, and it is said not to be liable to cheloid growths, which sometimes develop upon the scars left by scraping operations.

Hence, in lupus of the face, where æsthetic considerations have especial force, linear scarification deserves a full trial in the promise it affords of effecting the desired object with the least amount of consequent deformity.—*Dublin Journal of Medical Science*, February, 1885.

ALLEGED DANGERS IN THE USE OF CORROSIVE SUBLIMATE AS AN ANTISEPTIC AGENT.—DR. FRAENKEL, of Hamburg, draws attention (Virch. *Arch.*, 99, ii.) to an almost unsuspected danger arising from the too free use of corrosive sublimate as an antiseptic agent. His remarks are in the first place based upon a case recorded by Stadfelt, of death with dysenteric symptoms following upon intrauterine injection of a solution of sublimate (1 to 1500) after adherent placenta, and are supported by the results of post-mortem examinations of surgical cases in which this solution was employed. In all these cases (fourteen in number) severe ulcerative lesions were found in the large intestine, but Dr. Fraenkel admits that in only two of these could the lesion be said to have caused the death of the patient. The appearances presented by the diseased bowel resembled those of acute dysentery—viz., more or less extensive areas of necrosis of the mucous membrane, with intense surrounding inflammation. He combats the notion that the intestinal lesions depended on septicæmia, mainly on the ground that in no case were any other of the lesions characteristic of septicæmia or pyæmia present, nor did the cases run the clinical course of blood-poisoning. Although the paramount value of corrosive sublimate as an antiseptic must be admitted, its employment is nevertheless not free from risk. Its immoderate use as an external application is liable to excite the diphtheritic-like inflammation of the large and sometimes of the small intestine, which is recognized clinically by tenesmus, colic, and bloody stools. But so far the renal changes supposed to be characteristic of sublimate poisoning have not been observed in surgical practice. The intestinal affection is most liable to occur in individuals whose nutrition is defective, or who are very fat, especially those with fatty hearts; and particularly if the sublimate has been in contact with large exposed and absorbing surfaces, as the peritoneum or uterus; therefore care should be taken to use only the weakest solutions consistent with their antiseptic property, and especially not to use them too frequently as intrauterine injections.—*Lancet*, February 28, 1885.

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INTERMEDIATE HOSPITALS FOR THE TREATMENT OF INSANITY.

IN the issue of *The American Journal of the Medical Sciences* for January, 1885, there is an important paper by DR. VAN BIBBER of Baltimore, on "Intermediate Hospitals for the Treatment of the Insane," which formulates certain conceptions that have been fermenting in the minds of alienists and neurologists for several years past. There has been developing a conviction that our existing asylums for the insane, in their therapeutical management, do not represent those advances in our knowledge which have demonstrated the dependence of psychical derangements on changes in the organic substratum of the mind. That these institutions, in their organization and management, are adequate for that conception of insanity which regards it as a merely psychical derangement, may be admitted; but if the modern belief that it is a malady caused by alterations in the physical basis of the mental functions be true, then the present merely moral and hygienic methods do not suffice. The accumulating evidence of physical changes underlying psychical derangements, renders necessary a new departure in the therapeutical management of insanity.

For the most part, our asylums are mere boarding-houses for people with disordered intellects, and the superintendent performs the functions of a boarding-house keeper. With the best intentions towards the scientific side of asylum management, the superintendent cannot escape the necessities of his position as the mere keeper of a lodging-house. The study of the structural changes in the brain in his fatal cases, must yield to the demands of his living inmates for a supply of potatoes and cabbages. Although at the outset of his career as an alienist, he may have been zealous to achieve accuracy in his diagnosis and an enlightened skill in his therapy, circumstances at last compel him to regard these as quite secondary to confinement under hygenic conditions. Instead of contributions to knowledge based on the observations and experiences of the asylum practice, he contents himself with an annual report in which the kitchen garden, the games indulged in by the patients, the contributions of flowers and pamphlets by benevolent ladies, and columns of ingenious statistics, figure as the ultimate expression of alienistic wisdom.

The present system, is, obviously, unequal to the demands of modern science. How shall it be modified to render the therapeutics of insanity conformable to that conception which regards it as a symptom of a change in the physical basis of the mind? Dr. Van Bibber proposes the organization of intermediate hospitals, where the insane yet capable of benefit from remedial agencies can be subjected to treatment by a suitable staff.

Considered from the merely therapeutical point of view, the insane may be divided into two great classes: the acute cases, and those affected with forms of mental derangement, for which a reasonable expectation of benefit from appropriate treatment may be entertained; the incurable of every kind.

As respects the latter—unfortunately a large group—the present boarding-house system is probably well devised to give them the maximum comfort consistent with security. Requiring no immediate medical supervision, the superintendent of the asylum containing them may devote himself to the cares of the farm and the kitchen, and to the compilation of those entertaining statistics which illustrate, at the same time, the skill of the doctor and the wisdom of the Board of Trustees or Managers.

Far different organization and methods are demanded for those asylums which receive the acute cases and those requiring treatment. These should be true hospitals, officered and managed as such institutions should be. We have here to encounter the burning question of superintendents with the manifold executive powers now possessed by that official in the existing insane asylums. It requires but little acquaintance with the needs of hospital administration to see how anomalous the position of superintendent is, if an asylum is to be a real hospital, devoted to the medical care and cure of insane patients. For the business and merely executive management of an hospital for the insane, a lay administrator, acquainted with the special functions of such a place, entirely suffices. Such an administrator properly enough, and doubtless, preferably, may be a medical man; but the performance of such duties are manifestly incompatible with the actual charge of

the insane patients. It is quite possible to combine the duties of a medical superintendent with those of a house physician, acting in individual cases under the prescribed direction of an attending staff.

To a properly organized attending staff of neurologists and alienists, should be committed the remedial management of the inmates of such an hospital for the insane. In other words, the arrangements for the treatment of insane patients should be approximated to those that now obtain in the general and special hospitals of the present day. The attending staff should be organized from amongst those members of the profession who have given most attention to disorders of the nervous system. Insanity can no longer be relegated to the merely psychic realm, and hence the treatment of those mental affections dependent on physical alterations should properly be entrusted to those who have made themselves familiar with the diseases of the brain and nervous system.

Furthermore, as cerebral affections may manifest themselves in, or spring from, diseases of the organs of special sense, a properly organized staff for such an hospital should include the specialists devoted to such maladies. A scheme of this nature given its fullest development, may be so enlarged as to include the employment of other specialists for the treatment of accidental and intercurrent affections. The staff might thus be constituted of attending and consulting members—the latter to be called on in cases of difficulty, or of an extraordinary character.

It is greatly to be desired that the plan outlined by Dr. Van Bibber, in his timely paper, be submitted to the test of experience. Surely, the progress of our knowledge in brain diseases should have adequate expression in the remedial management of the insane cases in our asylums. Are we still to wear the bonds of an immovable conservatism, and continue worn-out expedients no longer adapted to the enlarging needs of modern society? If change is not necessarily progress, we are surely in a position where radical changes are indispensable to enlightened progress in the treatment and cure of insanity.

THE TREATMENT OF DIPHTHERIA.

JUDGING from a recent discussion at the Berlin Medical Society, succeeding the reading of Henoch's paper on diphtheria, we are forced to conclude that the therapeutics of this disease is not more definitely fixed in the minds of German physicians than in our own. At the same time, the discussion evolved some important practical points which should interest our readers.

While FRÄNKEL was satisfied that it is quite possible to dissolve off diphtheritic membrane from the fauces by the use of acid solutions of pepsin, he did not believe anything was gained by so doing, since, in the first place, it is the false membrane in the bronchi, which cannot be reached by the pepsin solutions, which tends to produce stenosis and suffocation. That the vegetable organisms which are found associated with diphtheritic membrane, and which are always superficial in this situation, have anything to do with its causation or virulence is by no means proven. Fränkel compared diphtheria with erysipelas in its mode of extension and in our inability by any local measures to prevent its spread, unless it be by the saturation of the parts with corrosive sublimate solution, which, in the case of the pharynx, it would be impossible to do. He, therefore, limits the treatment of the disease to combating the fever by quinine, and to the use of supporting measures, making local treatment altogether secondary.

FALK contended that while gastric juice must be admitted to have some effect in destroying infectious substances, it is through its hydrochloric acid, and not its pepsin. Further, its effect is different upon different organisms. Thus upon the tubercle bacillus it is inoperative, while it destroys the bacillus of anthrax and the cholera fungus.

GUTTMANN took ground against Fränkel's view, that treatment of the diphtheritic membrane is unnecessary. He believes that the vegetable organisms in false membrane are the infectious agent, and that they are the medium of descent of the process into the larynx and trachea. This he considers proven by the fact that in 165 autopsies he has never known the larynx to be overleaped in the extension of the process, the membrane having always travelled from the pharynx through it to the parts below.

It is true that Koch's experiments discovered but a small number of disinfectants which destroyed the spores of anthrax within twenty-four hours. Such were solutions of corrosive sublimate 1 in 1000; freshly prepared chlorine water, two per cent.; iodine water, two per cent.; bromine water, five per cent.; permanganate of potassium solution; and one per cent. solution of osmic acid. A five per cent. solution of carbolic acid requires forty-eight hours to destroy the spores. While it is impossible to keep any of these agents in contact with the diphtheritic membrane for twenty-four hours, advantage might still accrue from their frequent use. Guttmann has employed papayotin in the strength of a four per cent. solution, making hourly applications to the fauces, but without effect. He had found, too, that its direct action upon false membrane immersed in it was exceedingly slow. He had obtained in one instance an astonishing effect from turpentine, which was found by Koch to be slightly more efficient in destroying bacteria than a three per cent. solution of carbolic acid. Guttmann gave it in a dose of a teaspoonful. A short time after its administration large masses of membrane were

discharged from the larynx and trachea. Subsequent use of the same remedy had not, however, been followed by similar results. Among the most ineffectual substances, so far as their action upon the spores of anthrax are concerned, may be mentioned potassium chlorate in five per cent. solution, salicylic acid, and benzoic acid.

PATCHKOWSKI earnestly recommended the treatment by ice, internally and externally. This should be maintained uninterruptedly, a fresh piece being immediately substituted for one just dissolved; and this must be done continuously night and day. Since it is unnecessary even to awaken the child, he denies that the treatment can have any fatiguing or prostrating effect. He rightly holds, too, that the ice bag is often carelessly applied, being allowed to lie simply against the front of the throat instead of being drawn closely up to the lobe of the ear on both sides. This statement we can confirm from our own knowledge, having seen efforts at carrying out the ice treatment rendered useless by inattention to this point.

GÜTERBOCK also believed that the ice treatment is the most useful, not because it contributes in any way to the solution of false membrane, since it fulfils very different indications. Children die not from membrane on the true vocal cords, where it is very seldom present, but from œdema of the aryepiglottic ligament and of the false vocal cords. For the prevention of such secondary infiltration, ice is most efficient.

From a review of the above discussion, it would seem that antipyretic and supporting measures by quinine and allied means, and the use of ice, constitute the treatment received with most favor in Berlin, while the use of disinfecting agents to the fauces has also some supporters. On the other hand, the local and general use of chlorate of potassium and iron, and the administration of large doses of calomel, which may be said to represent the special treatment of this country, do not enter largely into German therapeutics.

THE LIFE HISTORY OF EPITHELIOMA OF THE TONGUE.

ALTHOUGH scirrhous carcinoma of the tongue is occasionally met with, the most important of the neoplasms of that organ is epithelioma, the natural history of which has a special interest at this time, in connection with the case of a distinguished citizen, in which minute examination has disclosed that the disease is a cancer of that type.

Lingual epithelioma, as a rule, rapidly progresses towards a fatal termination. When left to itself, the life of the patient from the first appearance of the disease varies, in accordance with the estimates of different observers, from 10.5 to 13 months, the average being 11.7 months. Death ensues, first, from the generalization of the disease; secondly, from septic pneumonia, from the inhalation of the putrid emanations which result from the decomposition of the products of the ulcerated surface; thirdly, from starvation, through the pressure of the infected lymphatic glands and surrounding parts upon the œsophagus, thereby interfering with deglutition: and, lastly, from hemorrhage proceeding from the ulcerated lingual arteries, or the vessels of the neck.

The duration of life of those who survive an operation averages 19 months. Not only does operative interference prolong life and relieve suffering, but it effects a final cure in 14 per cent. of all cases. In attaining these results it must, however, be remembered that excision of the tongue is attended with a mortality of 23 per cent., the principal dangers being shock, hemorrhage, œdema of the glottis, septic lung affections, pyæmia, and erysipelas, some of which risks can be avoided by taking careful precautions during the operation, and by the perfecting of antiseptic measures during and after the procedure.

When, in addition to disease of the tongue itself, the palate and the tonsil are involved, the prognosis is far more grave, whether the disease be permitted to pursue an unaided course, or whether it be subjected to the knife. In the latter event, not only will the tongue have to be extirpated, but the disease of the palate and tonsil will have to be reached either by Langenbeck's or Mikulicz's method of operation. In the former, the jaw-bone is divided just in front of the masseter muscle, while, in the latter, the ramus of the jaw is resected. For carcinoma of the tonsil alone, temporary section of the inferior maxilla has been practised by Cheever, Gensmer, and Von Bergmann. In Cheever's case, the disease continued to progress; in Gensmer's there was freedom from recurrence for thirty-three months; while we are not aware of the fate of Von Bergmann's patient. In Mikulicz's case of resection of the ramus, the patient was well at the expiration of six months.

So far as we can learn, there is no example of the performance of the double operation on record; and it is, in our opinion, not justifiable. The only available measures are those directed toward the relief of suffering, the prevention of septic complications, and supporting the powers of the system. Should deglutition be greatly interfered with, gastrostomy might be resorted to; but this procedure, under the circumstances, is of such a questionable nature, that the prudent surgeon would doubtless not take it into consideration.

GENERAL GRANT'S CONDITION.

SINCE our report of last week the progress of the disease in the case of General Grant has been marked by no important change. There was a local

exacerbation on Wednesday, during which the last bridle of tissue on the inner side of the ulcer of the anterior pillar was destroyed, and the gland in the neck became enlarged. The inflammatory thickening of the mucous membrane of the hard palate has somewhat diminished, but the enlarged gland in the neck, which is deeply situated behind the angle and ramus of the jaw, appears more firmly adherent.

There has been but little pain, and the most prominent feature of the case during the week has been insomnia, which is exceptionally difficult to treat because of the sensitiveness of the patient to the disturbing secondary effects of the common remedies.

The General has driven out once or twice during the week, but has not yet felt able to resume the preparation of his memoirs.

Although, as we have before stated, an operation for the removal of the disease is not contemplated, the association with the case of such eminent surgeons as Professors Markoe and Sands is an ample guarantee to the profession that the question has not been overlooked, and that, if any operation should be deemed advisable, it would be performed with the utmost skill and soundest judgment.

A NEW PHASE OF PROFESSIONAL ADVERTISING.

THE medical public can scarcely be expected to regard with complacency some recent phases of professional propriety exhibited during the past few weeks in connection with the case of General Grant. The public at large has been taken into the professional confidence of the medical attendants with a degree of freedom quite surprising to those who regard the knowledge obtained in this relation as a sacred trust. Even the law, which requires of all witnesses "the truth, the whole truth, and nothing but the truth," so far respects the office of the physician as to permit him to withhold the information imparted to him in his professional capacity. Hitherto, the unwritten law, no less than the formal statement of our code, has enjoined on the physician the utmost reticence in all the affairs of his patients. The simplest sentiment of honor, as well as the plainest dictate of self-interest, require the medical man to observe the proprieties of his position, in the absence of precedent or legislation. But some of our colleagues appear to be indifferent to these long-recognized sentiments and proprieties. They have blazoned forth in the secular press every detail of General Grant's case, and pictorial illustration has been invoked to render their account more impressive.

It may be said, and indeed we believe this justification has been put forth, that because of the eminence of the patient, and the place he holds in the esteem of the nation, there is a demand for full information. That this plea should be extended to include facts which can be appreciated only by those who have had a technical training, is certainly erroneous, and one of the most influential papers of the day (*Harper's Weekly*) energetically protests against this assumption. A daily bulletin, free from technical details, would much more aptly satisfy the public anxiety than the elaborate descriptions fit only for medical journals. It looks as if other and different considerations than an amiable desire to satisfy the public curiosity have induced the publication of professional details. Elements have been at work which have apparently lowered the standard of professional morality. As any chain is no stronger than its weakest link, so any measure which lessens the binding force of our medical code at any point, weakens it throughout. In the latest example of questionable professional ethics, we find ample evidence of the undermining action of those provisions of the "new code" which have abolished the barriers between legitimate medicine and all kinds of irregular practice.

The ethics of a proper professional status once ruptured, there is no limit to the disintegration which will ensue, and it behooves the profession, at once, to place its emphatic disapproval upon this disregard of the rights of patients. Medical men should not allow themselves to be interviewed by the daily press, to break down the barriers which surround the confidential relation of physician and patient, and to give to the public minute details of the progress and treatment of a disease, even though it be in the case of a most distinguished citizen, in whose welfare fifty millions of people feel a deep interest.

INFANTILE OVARIAN HERNIA.

IN the *St. Petersburger Medicinische Wochenschrift*, No. 4, 1885, may be found the record of an incarcerated hernia of the ovary in an infant seven months old. A small tumor existed in the left inguinal region, which disappeared on pressure, but returned on withdrawing the pressure, and gave rise to no general symptoms. When next seen by DR. SCHMITZ, the tumor, which was of the volume of a pigeon's egg, and seated at the outer ring, had been irreducible for eight days, and was extremely painful. Efforts at the taxis, under chloroform, having failed to reduce the tumor, it was extirpated, the sac ligated and excised, and the broad ligament tied and returned. At the expiration of ten days the wound had completely united.

The occurrence of ovarian hernia in infants is very uncommon, and, unless we mistake, this is the second operation for that lesion on record, the first, which proved fatal from peritonitis, having occurred to Guersant. It is also interesting to note that Dr. Schmitz found an ovarian hernia, as large as a pea, in a child of the same family five weeks old.

SOCIETY PROCEEDINGS.

OBSTETRICAL SOCIETY OF PHILADELPHIA.

Stated Meeting, March 5, 1885.

THE PRESIDENT, B. F. BAER, M.D., IN THE CHAIR.

DR. WILLIAM GOODELL read a paper entitled

A YEAR'S WORK IN LAPAROTOMY.

(See page 313.)

THE PRESIDENT presented a

GANGRENOUS FIBROID TUMOR OF THE UTERUS,

and made the following report of the case: Mrs. J., a patient of Dr. Ira D. Canfield, of Renova, Pa., 52 years of age, married, has had one child eighteen years ago; she has not been pregnant since. Her abdomen had been rather prominent for years, and about five years ago she discovered that it was becoming quite firm and hard over the lower protuberant portion. About the same time her menses began to appear more frequently than usual and to continue longer, until during the last year she flooded continuously three weeks out of every four. She thought she sometimes lost a quart of blood in twenty-four hours. There was great tenderness over the abdomen, so that the weight of the clothing was intolerable and she had a constant feeling of painful distention, a sensation of bursting sometimes. These symptoms increased in severity, and in the latter part of January, 1885, labor-like pains supervened. Paroxysms of uterine tenesmus occurred several times a day, resulting finally in a discharge of serous fluid and gas which must have been considerable in quantity, for the next morning there was marked subsidence of the previously distended abdomen. However the large, dense, round, and evidently, uterine tumor still remained, tolerating now comparatively rough manipulation, the tenderness having almost entirely disappeared. The quasi-labor-pains increased in frequency and strength, and shreddy putrid masses were occasionally expelled from the vagina. The patient began to show evidences of acute septicæmia. Dr. R. Honesbourg, of Lock Haven, was now called in consultation, when it was determined that nature was endeavoring to cast off a decomposing uterine fibroid, and an effort was made to assist. Symptoms of blood poisoning became alarming.

On February 15th I was hurriedly summoned, and with the patient anæsthetized we found the following condition: Abdomen distended and tympanitic; a globular and symmetrical mass outlined within the lower portion of the abdomen, extending two inches above the umbilicus, about the size and consistence of the pregnant uterus at the seventh month of gestation. Hanging from the vaginal orifice was an elongated mass of toneless decomposing tissue, which resembled the appearance which might be presented by a great mass of amniotic membrane which had been allowed to remain in the parturient canal for several days after labor. It had a purplish ashy color, and was as thick as my forearm. The odor emitted was sickening. Passing my hand beside this mass, for I could not easily separate it, I found the os uteri so dilated that the vaginal and cervical canals were almost of the same calibre, and the rim of the os could scarcely be defined. Advancing my hand within the cavity of the uterus, it passed among an immense quantity of semi-friable soft and shreddy tissue, and discovered several large tumors of firm consistence embedded in, and apparently one with, the uterine wall. Indeed, it was difficult to define the uterine wall, so irregular and thick was it at some points and so thin at others. The tissues at the attenuated portions—the uterine wall proper—appeared so weak that I feared the manipulations necessary to enucleate the tumor would make rupture of the uterus imminent. But their immediate removal was imperative, and fortunately their attachments were softened by the process of degeneration which had caused the grave symptoms. I, therefore, introduced Thomas's spoon-saw, and with that and my fingers I separated and removed section after section until there was nothing left of the uterus but the merest shell. The aggregated quantity removed, a portion of which I present this evening, almost half filled a wooden bucket. The uterus did not contract well after the operation and very free hemorrhage occurred, but it was controlled and the uterus made to contract by large and repeated injections of pure vinegar. The after-treatment was carefully and judiciously conducted by Dr. Canfield, and consisted of injections, into the uterine cavity, of vinegar twice daily, until all fetid discharges had ceased. The improvement in the temperature and pulse of the patient was remarkable, and within a few days she expressed herself as feeling better than she had for years. She is now sitting up, apparently restored to health.

DR. HARRIS inquired the cause of the gangrenous change in the structure, Was it confined to the new tissue?

DR. GOODELL thought that the process of auto-enucleation was the cause of the degeneration of the tumor. The latter is a low grade of formation, and the contractions of the uterus and the constriction caused by the cervix uteri around the already extruded portion interfered with the circulation in the tumor and caused its death. In one case he removed a tumor in which this process had just commenced; the removal of the tumor was followed by a gush of near half a pint of broken-down blood which was very offensive in odor. A sharp attack of erysipelas followed.

DR. BAER could give no other reason than that advanced by Dr. Goodell. The tumor was of slow growth; no ergot was given, but labor-like pains supervened and may have cut off the circulation. The degeneration was apparently confined to the new growth.

THE PRESIDENT presented the specimen and read the following report of a rapidly growing

PAPILLOMATOUS OVARIAN CYST.

Mrs. G., æt. 41, widow for eight years, has had eight children, the youngest being nine years. She always enjoyed robust health until September, 1884, three months before I first saw her. At that time a slight metrorrhagia began without pain or other disturbance. Previous to that time her catamenial periods had been regular. In October she noticed that the lower portion of her abdomen was slightly enlarged a little to the left of the median line. She thought nothing of it then, but thought that she was growing fat. The hypogastrium, however, continued to distend and she began to

lose flesh. Her physician, Dr. A. R. Blair, of York, Pa., brought her to see me on January 3, 1885. Her abdomen was then as large as at the sixth month of gestation, symmetrically developed, perfectly smooth, dull on percussion over the distended portion, but resonant in flanks and epigastrium, and there was marked fluctuation. Dark bloody discharge from uterus, not fetid. It was thought she was pregnant and that the metrorrhagia was due to threatened miscarriage. But she was losing flesh, and there were no rational or physical signs of pregnancy except abdominal enlargement. The uterus was slightly prolapsed and retroverted, rather softer than natural, os patulous, cervix granular; sound two and a half inches; uterus not easily moved because of a mass pressing upon it from above. I diagnosticated a rapidly growing ovarian cyst, and advised immediate operation; but she was not ready. I saw her again on February 7. The tumor had increased to double the size it was at first examination. It was still symmetrical and occupied the same relation to the uterus. She was losing flesh and strength. She now complained of pain all over anterior surface of abdomen, and her pulse and temperature were slightly elevated. She at no time suffered pain in the tumor.

On February 18th she entered my private hospital. Had increased greatly in size during the intervening ten days. Circumference at umbilicus forty-six inches, veins in abdominal wall distended. Tumor still symmetrical and markedly fluctuating. Metrorrhagia has continued daily since its first appearance in September. Suffers from dyspnœa. Pain over surface as before, and abdominal wall seems to be one with the tumor. I suspected, from this circumstance, adhesions of tumor to peritoneum. Urine normal.

Operation.—February 20th, 11 A.M., assisted by Drs. D. J. M. Miller, J. C. Gabell, in the presence of Drs. A. R. Blair, J. W. Kerr, and F. B. Hazel. Incision three inches; tumor almost universally adherent to anterior wall of abdomen and omentum, and very vascular. I passed my hand and separated adhesions, and then tapped the cyst; the fluid had the color and consistence of healthy pus, and was more than an ordinary wooden pailful in quantity. Solid portion of tumor, larger than the fœtal head at term, was delivered through the small incision. The tumor proved to be of the left ovary and had a very short and vascular pedicle, which held it in close contact with the uterus. Ligated and amputated omentum, transfixed and ligated the pedicle with fine Chinese silk, cut and dropped. The right ovary being perfectly healthy, was not removed. The uterus was soft and congested. Peritoneum purple from congestion, but there had been no ascitic fluid and the peritoneal cavity was found almost free from liquid. Probably ten minutes were spent looking for bleeding vessels and finishing the "toilette of the peritoneum." Abdominal wound then closed with eight silk sutures. The patient recovered from the anæsthetic without any evidence of shock; pulse 98; temperature normal; and she continued to do well until the second day, in the evening of which her temperature reached 100°, its highest point; pulse 108, and strong. She complained of being tired and looked worn. She had not passed flatus from the anus, but there were occasional eructations of foul gas. There was no tympany and no pain, but at about 11 P.M. she vomited or rather regurgitated about a pint of very fetid yellowish liquid of a decidedly fecal odor. The large quantity (she had not taken a teaspoonful of anything since the operation) and the odor, together with the fact that she had not passed flatus from the anus, caused me to suspect intestinal obstruction. Her temperature fell soon after this to 96°, and her pulse rose to 150, and became very weak. There was no pallor of countenance, or distention of abdomen or Douglas's cul-de-sac, or I should have thought this depression, bordering on collapse, was due to hemorrhage. Neither were there any other symptoms of intestinal obstruction than the apparent fecal vomiting and the non-escape of flatus from the rectum.

Under the influence of active stimulus, by the rectum and hypodermically, she slowly rallied, but the temperature did not reach the normal point until the fifth day after the operation when flatus began to escape from the rectum. Her recovery was rapid after this. The sutures were removed on the eighth day. Union complete and solid. She sat up on the thirteenth day. There has not been any bloody discharge from the uterus since the operation.

The tissues of the cyst wall are very friable, and the internal surface is studded with an exuberant papillary growth presenting an appearance not unlike cauliflower excrescence.

The very rapid growth of this tumor to the great size which it attained in five months, the constant metrorrhagia and the character of the tumor, place this case quite out of the usual course of development of ovarian cysts, and make it worthy of record. These are characteristics of malignant disease. Is this a malignant tumor? I think not, in the sense that it will necessarily return, now that it has been removed before the cyst wall had broken down and discharged its contents into the peritoneal cavity. This is the course of papillomatous ovarian cysts. But even when this has occurred and the peritoneum become involved, the disease may not return after removal. Some years ago I assisted Dr. Goodell in the removal of a papillary growth of the ovary in which the cyst had ruptured and discharged its contents into the peritoneal cavity. The peritoneum was greatly involved, being thickly studded at various points with hard papillary nodules. The patient recovered, and the disease has not returned. Dr. Emmet records a like experience. He says: "I have never regarded the condition as malignant in character or in any respect more than a benign growth, accidental to ovarian tumors and accompanied by an ascitic accumulation (ascites complicates a later stage of the disease than my case had reached). I have, however, sometimes observed in this supposed malignant disease that patients bore the shock of the operation badly, and died from apparently trivial causes" (*Prin. and Prac. Gynec.*, 3d ed., p. 683). It is probable that ovarian cysts of very rapid development often have this papillary character. One of the specimens which I presented to this Society at its last meeting was of this description, though less marked; and it had attained a size of thirty pounds in nine months. It is also probable that the constitution is more profoundly affected by these growths than by the ordinary slow-growing ovarian cysts. For these reasons operation should never be deferred in such tumors.

DR. HARRIS inquired whether any microscopic ex-

amination of the tumor had been made. He always suspected malignancy in rapid growths, and in papillomatous tumors the decision cannot be made from appearances, as of two such having the same apparent characters, one may prove to be malignant and the other benign.

DR. GOODELL remarked that the question of malignancy in ovarian tumors was a most interesting one. As regards papillomatous cysts, Doran has divided them into two classes: One springing from the hilus of the ovary and not necessarily malignant, while papillary growths in cysts of the broad ligament usually indicate malignancy. Some years ago he removed a collapsed papillomatous ovarian cyst upon which the late Dr. Hodge had refused to operate in consequence of supposed malignancy. It was complicated by ascites and the peritoneal cavity had become infected with secondary growths; yet the woman got well and has probably remained well. On the other hand, benign-looking growths are sometimes malignant; for instance, he removed a large tumor having many adhesions, twenty-four ligatures were left in the abdominal cavity. It was wholly benign in appearance and the patient got up and about, but soon she became oppressed by rapid breathing. Effusion into the right pleura was discovered, together with malignant growths affecting that cavity and scattered throughout the abdominal cavity. The tumor was evidently malignant, but it did not look so. In another case of apparently benign cyst, in which the clamp was used, menstruation occurred from the cicatrix, and later papilloma of the stump and abdomen sprouted out from the cicatrix and the patient died. He said that all his cases of colloid tumors, three in number, have become malignant afterwards. In one case, five years after the first operation, the second ovary became diseased, the sac burst and the whole contents of the peritoneal cavity became infected. In another, two years after the removal of both ovaries, the disease returned in the broad ligament, probably from the stump of the ovary. In another case the cicatrix burst open a few weeks after the operation, and a large papillomatous growth sprouted out, the lady dying soon after. Tait considers that among the causes of malignancy are tapping and delay in operating, the age of the cyst tending to malignancy. Dr. Goodell doubted if the microscope can distinguish between benign and malignant papillomata. Virchow states that although benign at the beginning, they may become malignant in the later stages.

NEW YORK SURGICAL SOCIETY.

Stated Meeting, February 24, 1885.

THE PRESIDENT, ROBERT F. WEIR, M.D., IN THE CHAIR.

DR. A. C. POST narrated a case, that of a boy, nine years of age, who was brought to his clinic with a

BURSAL SWELLING AT THE BACK PART OF THE WRIST,

and in which he made an effort to rupture the sac by striking it sharply with a wooden bat. The first blow did not rupture the swelling, and he repeated it several times, and found that a dangerous degree of force would be required to rupture it in that way. He then punctured the cyst, and pressed out exceedingly viscid contents, much more viscid than is the vitreous humor. After squeezing out the contents through a small opening he applied an antiseptic lotion, and afterwards applied a compress made of cork, which he bound over the swelling with a bandage, and this was allowed to remain for a week, when the patient returned, and on removing the dressing he found that the cork had made a marked depression of the surface where it had been applied, but that there had not been the slightest inflammation, and the case was progressing favorably.[1]

DR. SANDS inquired how frequently the members of the Society had performed cutting operations for the cure of this disease. The treatment by rupture, as described by Dr. Post, had doubtless often yielded good results, but not unfrequently the relief afforded proved to be temporary. Another method of evacuating the cyst was to open it subcutaneously with a broad needle. His own experience with this method had been generally favorable, yet he had known it to fail to accomplish a permanent cure. He had lately seen a patient who had been treated in this manner by an eminent surgeon in New Haven. The operation being followed by a recurrence of the swelling, the surgeon again emptied the cyst in the same way, and as the contents flowed out through the puncture, he inserted a hypodermic needle into the opposite wall of the sac, and injected it with a strong solution of carbolic acid. This procedure was also unsuccessful, and when Dr. Sands saw the case, the tumor was of irregular shape and nearly as large as an English walnut, constituting a very conspicuous deformity. Dr. Sands advised a trial of iodine injection, and had since heard that this had been successfully employed. His knowledge of the extirpation of such ganglia was limited to two cases. The first one he himself treated by excision, a good many years ago, and was able to dissect out the cyst without opening the sheath of the tendon, the patient making a good recovery.

The other case occurred in the practice of a medical friend, before the days of antiseptics. Excision was performed, the parts being rendered insensible by ether spray. Violent inflammation followed the operation, and rendered the hand nearly useless. Dr. Sands saw the patient several years afterward, when she was unable to flex the fingers, and there was but little motion of the hand. In that case the sheath of one of the extensor tendons of the thumb was opened, and it was feared at the time of the operation that mischief would follow. Probably at the present day there would be but little risk of phlegmonous inflammation following such an accident, and, in some instances, an operation for the complete removal of the swelling might be indicated as the only effectual means of accomplishing a cure.

THE PRESIDENT referred to the fact that Dr. Abbe in the out-patients' department of the New York Hospital had shown him three cases, in two of which he had resorted to puncture, and in the third to an incision, packing the sac with iodoform. In all instances the cases had done perfectly well. The operation of incision and packing with iodoform had struck him as one worthy of trial.

[1] The patient was seen again after the lapse of another week, and there was nothing to indicate a return of the swelling.

DR. STIMSON said that he had recently made subcutaneous puncture by means of a flat needle in two cases, both of which did well.

DR. SANDS thought that the subcutaneous puncture was always safe.

DR. POST remarked that he attempted subcutaneous puncture in his case, but the cyst was so thick that the fluid was oozing out before it was complete.

THE PRESIDENT referred to one case in which a ganglia had been injected with carbolic acid with severe reaction for which he was called upon to dissect the tumor out. The wound thus made healed promptly.

DR. PETERS remarked that one of the earliest operations he performed was subcutaneous puncture of one of these swellings upon the wrist of a very old gentleman, and the result was good.

REMOVAL OF THICKENED BURSA FROM OVER THE TROCHANTER MAJOR.

THE PRESIDENT presented a specimen removed from over the trochanter major of a married woman which appeared shortly after her confinement with her last child, two years ago. It did not seem to be associated with labor, and was not noticed until after she was up and about. The swelling was treated by counter-irritation without relief; increase in size slowly took place; finally a tumor about the size of an egg was revealed. He then thought it was probably a fibro-sarcoma; and, from its not being quite certain whether or not it was movable on the femur, that it might be of periosteal origin. At the operation performed three weeks since, it was found to be a bursa over the trochanter major under the gluteus maximus muscle, with walls nearly an inch in thickness, and constituting a mass as large as a goose egg. The central cavity was about the size of an almond. Recovery was prompt.

LITHOTRITY UNDER COCAINE.

THE PRESIDENT referred to a case in which he had performed lithotrity within the last ten days under the influence of cocaine. The patient was a man 72 years of age, with marked cardiac lesions, and his condition was such as to preclude general anæsthesia. He had long suffered from prostatic trouble, and a number of years ago submitted to an operation of prostatotomy by Dr. Gouley, with marked benefit. The calculus was about three-quarters of an inch in diameter, and phosphatic in character. Lithotrity, practised after the old method, was twice tried, with considerable suffering to the patient, but his condition was so poor that further efforts in this way could not be entertained. The patient's vesical sufferings were so great that he finally determined to see whether cocaine would be of sufficient service to enable him to remove the remainder of the calculus. He, therefore, on February 5, injected into the bladder, previously washed out with warm water, three drachms of a four per cent. solution, and allowed it to remain fifteen minutes, when an additional quantity of water was thrown in and the lithotrite was introduced. Although the urethra was still somewhat sensitive, the pain in this part was very much lessened, the bladder was entered without distress, the stone seized, from five to eight crushings rapidly made, Bigelow's apparatus No. 29 curved catheter introduced, and the aspiration effected. The entire operation occupied not more than eight to ten minutes. While the procedure was not absolutely painless, the cocaine reduced the sensibility of the invaded urinary tract to such a marked degree that the patient endured the operation without special difficulty. In the *Lancet* of January 17, received the day Dr. Weir operated, there is a report of a similar operation in which the cocaine had been used with much more satisfactory results. The patient was operated upon at St. Peter's Hospital, and the stone had been crushed and withdrawn in less than fifteen minutes in a painless manner. In this case, four drachms of a four per cent. solution were injected into the bladder.

DR. MARKOE inquired if there were any cases on record in which unfavorable effects had been produced by cocaine when applied to the unbroken mucous membrane.

Dr. WEIR replied that he knew of none.

DR. HALL remarked that he had seen constitutional symptoms produced by an injection into the urethra of two drachms of a four per cent. solution of cocaine. He had discovered also what did not appear to have been previously noticed, namely, that while small quantities produce vaso-motor spasm, and consequently anæmia of the part, large quantities produce vaso-motor paralysis and congestion. In the same way, when a dose just large enough to cause constitutional symptoms was given, the patient had dilated pupils, with pallor of the face, nausea, and a small hard pulse; while, after much larger doses, the pupils were not more dilated, nausea and pallor were absent, the pulse was full and soft, and a dreamy mental condition was produced.

THE PRESIDENT remarked that, had he been compelled to consider the subject of lithotomy, in his case he should have attempted to perform the operation by the aid of the local anæsthetic effect of cocaine. His experience in the removal of superficial tumors and in several quite deep incisions for pus had satisfied him that such an operation as lithotomy might be accomplished by the use of cocaine.

DR. BRIDDON had seen considerable relief follow the injection of one drachm of a two per cent. solution into the bladder for the relief of vesical tenesmus associated with prostatic trouble. He had one patient under observation in the Presbyterian Hospital who had used it every night, with the result of obtaining about two and a half hours of rest, for which no opiate or any other treatment afforded more than half an hour of relief.

MEDICO-CHIRURGICAL SOCIETY OF MONTREAL.

Stated Meeting, March 6, 1885.

PROF. T. G. RODDICK IN THE CHAIR.

PROF. GEORGE ROSS read a paper on a case of

PULSATING EMPYEMA,

simulating aneurism; spontaneous rupture, and recovery.

G. W., æt. 37, express driver, was admitted to the Montreal General Hospital, December 29, 1884, suffering from a sharp pain in the left side, a short cough, and feverishness. Four years ago had an attack of pneumonia, but with this exception has always been healthy. No history of rheumatism or syphilis. On December

24th, he got a severe wetting; on the 26th, had a chill followed by a stitch in the side. When admitted into hospital his skin was hot and dry, and he had an herpetic eruption on his lips, complained of severe pain in the left lower axillary region, increased by inspiration and pressure over the part; cough short and accompanied by expectoration of glairy mucus; temperature 103°; pulse 120, small and weak; respiration 24, short and shallow; tongue moist and coated. Examination showed somewhat deficient expansion of left side, dulness of base of left lung, and weak respiratory murmur with diminished resonance and fremitus of same area.

Patient continued much the same for several days, with high temperature and pulse always above 120. On the 2d of January there was dulness to angle of scapula and through lower axillary region. During the following week he suffered a great deal of pain in the left side which prevented him from sleeping, the fever still continued and he was inclined to sweat a great deal. On January 8th, the dulness in lower area of left side was much less. On percussing the front of the chest, a flat note was found, commencing at the upper margin of the second left costal cartilage and continuous with that of the heart. This dull area was bounded externally by a line drawn through the nipple and passed across the sternum a little to the right side. Expansion of left side of chest much impaired, second and third intercostal spaces were prominent and presented a quite perceptible pulsation synchronous with the systole of the heart. These pulsations were felt quite strongly on palpation. In this dull area vesicular murmur was almost absent.

During the next two weeks the case appeared to be stationary; temperature was always above normal; the patient sweated a good deal and emaciated considerably; the pain was persistent and rendered intolerable by any attempt to lie on the left side; the physical signs remained as before. On the 22d of January a rough friction sound was heard along the right margin of the sternum from near the clavicle to the third rib; all this time he had increased fever with nausea and vomiting, and pain was very much complained of in the dull region under the left clavicle. On the night of the 2d of February he had a severe fit of coughing, which was immediately followed by the outflow of about a pint of pure inodorous pus, which was brought up in the course of a few minutes. When seen next morning, he had a loose cough, every effort serving to bring up a large mouthful of pus; in this way half a pint or more was expectorated during the day. The percussion note, previously dull, at once changed to a clear and somewhat tympanitic note. The pulsating tumor had entirely disappeared. For a few days a loose cough with some purulent expectoration continued, and then ceased entirely. The temperature fell to normal, percussion became pulmonary in quality, the respiratory murmur became normal, and sleep and appetite soon returned. He left the hospital on the 2d of March strong and well.

Prof. Ross, in his remarks on the case, said it was evident from the history of this case that a considerable collection of pus was formed in the upper part of the chest, upon the left side, as a result of an acute pleuritic inflammation. He explained the occurrence of pulsation as due to the fact that the empyema was so situated that it communicated very distinct pulsations, either from the heart itself or the aorta, to the surface of the thorax, and that the empyema discharged itself by opening into the air-passages. He went on to remark that the symptoms resembled closely those met with in aneurism of the thoracic aorta, viz., localized dulness well defined, to one side of and beneath the upper portion of the sternum, prominence of the spaces, and above all pulsations, very distinct and easily felt and seen. In addition, there was very decided enfeeblement of the respiratory murmur. On the other hand, there was no bruit, no intensification of the second sound, no fulness or palpable pulsation behind the manubrium, and no downward traction on the trachea. These points, as well as the clinical history, Dr. Ross thought, at the time, decided against aneurism.

The most difficult thing to explain was the great obscuration of the vesicular murmur throughout the entire lung, and as the percussion note was not obviously altered from that of the opposite side, the conclusion was inevitable that the absence of tidal air must be explained by the existence of pressure upon the main branches. Dr. Ross stated that he had never met with this condition as a result of an advancing collection of fluid, but had often seen it brought about by the advancing pressure of a growing neoplasm or aneurismal tumor. Although Dr. Ross looked upon the affection, at the time, as probably an empyema, the possible existence of some obscure neoplasm (not an aneurism) was not to be lost sight of, as perhaps complicating the case,

Dr. Ross thought that if the case had been seen for the first time on January 8th, with an imperfect clinical history, it might easily have been mistaken for aneurism. The symptom of pulsation in connection with empyema, although very rarely seen, has been known for a long time. Le Roy many years ago recognized it, and says that it closely simulates aneurism. In the case narrated, Dr. Ross thought that the pulsations observed were communicated from the aorta, as this vessel, being filled by each successive systole, would necessarily compress a sac of fluid in immediate contact with it, and, if the latter touched the thoracic parietes, would cause visible pulsations upon the surface; on the other hand, when pulsations are observed in the side of the chest from the heart itself, these must be produced by the lateral movement of the heart from right to left, during the systole, because with the contraction the heart does not increase in bulk, and could not, therefore, produce compression in an adjacent body of fluid. In conclusion, Dr. Ross remarked that the full explanation of these communicated pulsations is an interesting subject, and one which is not very satisfactorily dealt with in medical literature.

NEWS ITEMS.

CINCINNATI.

(From our Special Correspondent.)

THE COLLEGE COMMENCEMENTS.—The classes graduated by our colleges this year have been unusually small. The Medical College of Ohio conferred the degree upon about sixty, the Miami College upon about half that number. The commencement exercises of the former institution were held on Thursday evening,

March 5th, and were witnessed by a large and appreciative audience. After the conferring of the degree by the President of the Board of Trustees, the Hon. M. F. Force, a large list of prizes were awarded, and the successful candidates for the position of resident physician to the hospitals, three to the Cincinnati and two to the Good Samaritan, were announced. The valedictory address was delivered by Professor J. T. Whittaker, his subject being, "A Chapter from the History of Medicine."

The commencement of the Miami Medical College occurred Tuesday evening, March 10th. The subject of the valedictory by Prof. F. W. Langdon, was "The Germ Theory of Disease."

THE SANITARY COUNCIL OF THE MISSISSIPPI VALLEY met at New Orleans on Tuesday, March 11, and was called to order by Dr. Joseph Holt, President of the Louisiana State Board of Health, and Colonel D. P. Hadden, President of the Council, took the Chair.

Dr. Pinckney Thompson, of Kentucky, introduced the following resolution, which was adopted:

Resolved, That Drs. Kedzie, Holt, Robertson, Rauch, Chaillé, and the President of the Council, be appointed a committee to formulate a system of coöperation of the States represented in the Council, to prevent the introduction of yellow fever or cholera in the Mississippi Valley, and also a plan of coöperation should either of these once gain admission to the Mississippi Valley.

On Wednesday this committee reported, recommending that the Secretary of State be petitioned to cause the consuls and consular agents of all ports from which ships clear for the United States, to furnish not only the usual information embraced in bills of health, but all particulars in regard to the existence of contagious, infectious, or epidemic diseases, which may endanger the public health by importation by vessels reaching our shores.

The Sanitary Council regards the exclusion of all vessels unmistakably infected with cholera or yellow fever from the Mississippi River as vital to the safety of the West, South, and the Northwest. It therefore petitions the Secretary of the Treasury to place a revenue cutter at the mouth of the Mississippi River to prevent the entrance of all such infected ships, and to send them to Ship Island or other refuge stations for quarantine and purification.

If, however, an infected vessel, or one suspected to be infected, enters the Mississippi River, the State Board of Health of Louisiana shall remand such vessel to a station of detention and absolute isolation until all danger of the spread of the disease by ship, cargo, crew, and passengers, has been entirely removed; the ship to be thoroughly cleansed and disinfected; the cargo to be disinfected; the baggage thoroughly disinfected, and the crew and passengers kept under observation until free from all suspicion of danger to the public health.

In view of the threatened invasion of cholera, the President is earnestly requested immediately to place the emergency epidemic fund in the hands of the National Board of Health, to be used in aid of State and Local Boards of Health in preventing the introduction and spread of cholera and yellow fever in the expectation that an adequate portion of this fund (not less than $50,000) shall be placed at the disposal of the State Board of Health of Louisiana, to hold this gateway of the South and West.

In the event of an epidemic of cholera or yellow fever, the first consideration of concert of action among health officers is confidence. This can be secured only by early, full, and free information of all the essential facts at points of outbreak. To secure such information, each and every health organization represented in this Sanitary Council pledges itself to furnish promptly to each other all information in regard to the appearance of cholera and yellow fever, or suspicious cases of yellow fever or cholera.

For the purpose indicated in the above resolution the following groups of symptoms shall be considered to indicate yellow fever and suspicious cases:

I. The following groups of symptoms shall be considered to indicate *yellow fever:*

Group 1.—A person after a sudden attack has fever of one paroxysm, attended with marked congestion or blood stasis of capillaries of surface, conjunctivæ, and gums, with a history of probable exposure to infection, and no history of a previous attack of yellow fever.

Group 2.—A person after a sudden attack has a fever of one paroxysm, followed by unusual prostration, albuminous urine, yellowness of conjunctivæ or skin, and having no positively authenticated history of previous attack of yellow fever.

Group 3.—A person has a fever of one paroxysm, albuminous urine, black vomit, suppression of urine, general hemorrhagic tendency under circumstances where exposure to infection is a possibility.

II. *Suspicious cases of yellow fever.*—The following symptoms, associated with a fever of one paroxysm, in a patient who has apparently been exposed to infection, and has never had yellow fever, shall be held to justify in either of the six following cases a suspicion of this disease, viz.:

1. Suddenness of attack either with violent pain in the head and back, injected eyes and face, or with marked congestion of the superficial capillaries.
2. Want of that correlation between pulse and temperature usual to other forms of fever.
3. Albuminous urine.
4. Black vomit.
5. General hemorrhagic tendency.
6. Yellowness of the skin.

The following cases shall also be deemed suspicious:

7. Any case respecting which reputable and experienced physicians disagree as to whether the disease is or is not yellow fever.
8. Any case respecting which efforts are made to conceal its existence, full history, and true nature.

In the event of death of a suspicious case a post-mortem examination should be made, when practicable. Both before and after death, yellow fever is specially and preëminently characterized by the fact that it is par excellence a hemorrhagic fever, marked by capillary congestion and its sequelæ, hence post-mortem evidence of a general hemorrhagic tendency in internal organs, especially in the digestive, in preference to the urinary tract, shall be held to confirm the suspicion.

The following conditions shall be held to justify a *suspicion of cholera* and to require from sanitary au-

thorities the same preventive treatment as if known to be cholera:

1. Any case of disease resembling cholera and attended with "rice water evacuations," shall be reported and treated either as cholera or as a suspicious case.

2. Any case respecting which reputable and experienced physicians may disagree as to whether the disease is true Asiatic cholera or not, shall be reported and treated as suspicious.

3. Any case rumored to be cholera, and respecting which efforts are made to conceal its existence, full history, and true nature, shall be reported and treated as suspicious.

4. Any notable and exceptional increase in the number of cases of, and of deaths by, such bowel disorders, as cholera morbus and diarrhœa, shall be promptly reported.

Sanitary inspection of steamboats carrying passengers and freight from the Gulf ports into the interior, in the case of an outbreak of cholera or yellow fever.

Proposition 1.—Every captain or commanding officer shall keep in a book of permanent record the sanitary history of his steamboat. Such captain or commanding officer, before leaving a seaport city or town, shall obtain a certificate from a medical inspector, which certificate shall be entered upon and form a part of said record, certifying that he has personally examined the steamboat, and that all the rules and regulations adopted by this Council, relating to the cleansing and disinfection while at the docks and wharves of such city or town, have been complied with. Said certificate shall also state that the cargo of freight, of whatever description, is in good sanitary condition, and may be safely transported to its point of destination.

Proposition 2.—The captain or commanding officer shall daily enter upon this record all facts relating to the health of the passengers and crew, and the amount and kind of sanitary cleansing during the passage, and such captain or commanding officer shall verify by affidavit, at the time of inspection, the correctness of the daily record.

Proposition 3.—The reinspection of said boat shall be required only at the point of destination (except as hereinafter provided), at which point the medical inspector shall examine, before she discharges her cargo, the sanitary record of the boat and the boat itself. If such record has been neglected, and the boat is in a bad sanitary condition, the medical inspector shall require proper sanitary cleansing and disinfection before the cargo is discharged or a new cargo is put on board. On the return passage the same rules apply.

Proposition 4.—All boats navigating the Mississippi River shall undergo inspection and reinspection, in the same manner as above provided, upon arrival at New Orleans, Vicksburg, Memphis, Cairo, St. Louis, and the point of destination.

Boats navigating the Ohio River shall undergo a like inspection and reinspection at Evansville, Louisville, and Cincinnati.

Proposition 5.—Whenever cholera or yellow fever prevails at any of the Gulf ports, the medical inspector shall certify on the record the precautions that have been taken, and the danger to be apprehended from cargo, passengers, and crew. The reinspection must be made at least one mile from a town, at a point suitable for the care of the sick, detention of the well, and the disinfection and cleansing of cargo and boat.

Proposition 6.—The foregoing rules and regulations shall also apply to tugs, tows, and barges.

Proposition 7.—River craft found infected, or suspected of infection, shall be promptly isolated and cared for at the nearest quarantine and refuge stations, of which an adequate number shall be provided for on the Mississippi River and its chief tributaries.

Sanitary supervision of railroads, and of travel and traffic by railroads during an epidemic of cholera or yellow fever.

Proposition 1.—Whenever a railroad train departs from an infected station, no person with cholera or yellow fever shall be allowed to take passage on such train. The baggage from such infected station shall be thoroughly disinfected before leaving such railroad station, by the use of the bichloride of mercury. At a point not less than fifty nor more than seventy-five miles from the point of departure from an infected place, there shall be an entire transfer of passengers and baggage to another train of cars, which train shall never enter an infected district. This transfer shall be made under the supervision of a medical officer. No person with cholera or yellow fever shall be allowed to proceed on this train, but shall be returned to the point of departure, or be treated in hospital at the place of transfer.

Your committee further recommends that a special committee of three on general sanitation, and the details of precautionary measures for the prevention of epidemic diseases, and especially of Asiatic cholera, be appointed by the Sanitary Council, with power to publish in behalf of the Sanitary Council.

The report was received and ordered published as the report of the Council.

On motion of Dr. Kedzie, in compliance with the report, Drs. Rauch, Holt, and Thompson, of Kentucky, were appointed as the Committee on General Sanitation.

On motion of Dr. Chaillé, the following resolution was adopted:

Resolved, That the Secretary request from the Chairman of the Committee on Disinfectants, appointed at the last meeting of the American Public Health Association, a plain, practical paper on disinfection and disinfectants for popular use and distribution, to be furnished to the Chairman of the Special Committee of this Council on General Sanitation.

At the election of officers for the ensuing year, Dr. Pinckney Thompson, of Kentucky, was elected President, and Dr. John H. Rauch, of Illinois, Vice-President and Secretary of the Council.

THE AMERICAN JOURNAL OF THE MEDICAL SCIENCES.—Our venerable contemporary, *The Edinburgh Medical Journal* (March, 1885), in speaking of the career of the American publishing house now known as Lea Brothers & Co., says, "Its imprint will be found on the works of many of the most notable of our professional brethren in America, and its famous periodical, *The American Journal of the Medical Sciences*, of which the late Dr. Isaac Hays was editor for more than half a century, has been eminently instrumental in gaining for American medicine a world-wide respect."

THE INDEX MEDICUS.—We are in receipt of a circular from Drs. Billings and Fletcher, announcing that Mr. George S. Davis, of Detroit, has undertaken to continue the publication of the *Index Medicus* on the same general plan, and with the same regard to typographical accuracy and finish, as heretofore.

On account of the delay required to perfect this arrangement, the first number of the journal for the current year will comprise the literature of January, February, and March, after which it will appear monthly as usual.

At the end of the year, in addition to the usual annual index of names, subscribers will be furnished with an index of subjects to the volume.

So many expressions of regret and urgent remonstrances in regard to the threatened discontinuance of the *Index Medicus* have been made, that the profession is to be congratulated on Mr. Davis's public-spirited determination to carry on the enterprise in spite of the fact that thus far it has not been pecuniarily remunerative.

It is requested that all exchanges, and books and pamphlets for notice, be sent to *The Index Medicus*, Washington, D. C.

STARLING MEDICAL COLLEGE.—The Thirty-eighth Annual Commencement of this institution was held at Columbus, Ohio, on March 4th, and the degree of M.D. was conferred on thirty graduates. The medical class, we are informed, was one-fifth larger than last year.

THE COLLEGE OF PHYSICIANS AND SURGEONS OF BALTIMORE, on the 13th inst., graduated a class of 154.

THE WOMAN'S MEDICAL COLLEGE OF PHILADELPHIA held its annual commencement on the 11th inst., and conferred the degree of M.D. on twenty-two candidates. The valedictory address was delivered by Dr. W. W. Keen, Professor of Surgery.

OVARIOTOMY.—On February 8, DR. E. MARTELLI, at the Hospital of Novara, successfully performed ovariotomy upon a woman aged 46, who had previously been operated upon two years ago. Primarily the left, and latterly the right ovary, was the seat of disease.

LAPAROTOMY.—PROF. A. FASSANO recently removed a fibro-sarcoma five pounds in weight from the right ovary without Listerian precaution. On the sixteenth day the woman had recovered.—*Gazetta Med. di Torino*, Feb. 15, 1885.

PLANS FOR THE NEW VIENNA HOSPITAL have already been determined by the Sanitary Committee, and approved by the Government authorities. It will be constructed according to the pavilion system, with all modern improvements and appliances, at an estimated cost of two million gulden.

PROFESSOR HYRTL will complete his half century in medicine during this month, and we learn that the Senate of the University and other learned bodies in Vienna are making arrangements to celebrate the event, and present their congratulations to the venerable anatomist.

PROF. NUSSBAUM.—On the 6th of January, the anniversary of the twenty-fifth year of service of Prof. Nussbaum as University Professor and Chief Physician of the City Hospital, was celebrated in Munich. The Burgomaster and representatives of the civil and military physicians delivered congratulatory addresses, in which due appreciation of Dr. Nussbaum's professional ability and private character was manifested.

DEATH OF PROF. FRERICHS.—A Berlin cablegram dated March 14, records the death of Dr. Frederick Theodore v. Frerichs, the distinguished medical professor and author. He was born at Aurich, in Hanover, March, 14, 1819, and was educated at Göttingen. He occupied a chair at the University of Kiel, then at Breslau, and in 1859 was called to the University of Berlin. During the Franco-German war he was Physician-in-chief of the army. In 1854 he received from the King of Prussia the decoration of the Red Eagle, and the title of Privy Councillor. Dr. Frerichs contributed extensively to Wagner's "Dictionary of Physiology," to Liebig, Poggendorf & Woehler's "Dictionary of Chemistry," was the author of a well-known work on the Diseases of the Liver, and one of the Editors of the *Zeitschrift für Klinische Medicine*. He was a man of fine ability, and his death a serious loss to German Medicine.

CORRIGENDUM.

In the number of THE MEDICAL NEWS for March 14th, page 300, second column, fifteenth line, for "ulceration" *read* "elevation."

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM MARCH 10 TO MARCH 16, 1885.

ARMY MEDICAL BOARD to meet in New York City, April 6, 1885. Detail for Board: Lieutenant-Colonel Joseph B. Brown, Surgeon; Major Anthony Heger, Surgeon; Major John H. Janeway, Surgeon.

SURGEON HEGER to be relieved from duty in Department of the East, and Surgeon Janeway to perform duties on the Board in addition to his present duties.—*S. O. 56, A. G. O.*, March 11, 1885.

TAYLOR, BLAIR D., *Captain and Assistant Surgeon.*—Leave of absence extended two months.—*S. O. 54, A. G. O.*, March 9, 1885.

OFFICIAL LIST OF CHANGES OF STATIONS AND DUTIES OF MEDICAL OFFICERS OF THE UNITED STATES MARINE-HOSPITAL SERVICE, FOR THE WEEK ENDING MARCH 14, 1885.

BAILHACHE, P. H., *Surgeon.*—Detailed as President Board of Examiners, March 10, 1885.

PURVIANCE, GEORGE, *Surgeon.*—Detailed as member Board of Examiners, March 10, 1885.

AUSTIN, H. W., *Surgeon.*—Detailed as Recorder Board of Examiners, March 10, 1885.

THE MEDICAL NEWS *will be pleased to receive early intelligence of local events of general medical interest, or of matters which it is desirable to bring to the notice of the profession.*

Local papers containing reports or news items should be marked.

Letters, whether written for publication or private information, must be authenticated by the names and addresses of their writers—of course not necessarily for publication.

All communications relating to the editorial department of the NEWS *should be addressed to No. 1004 Walnut Street, Philadelphia.*